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COMBAT SKILLS: Fighting in Built up Areas

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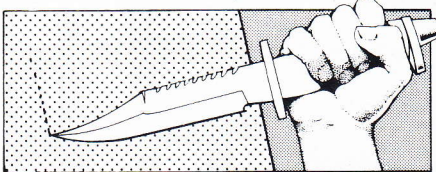
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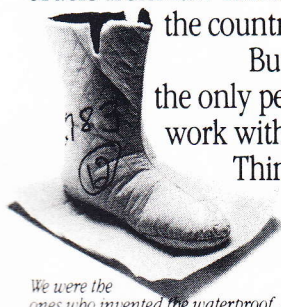


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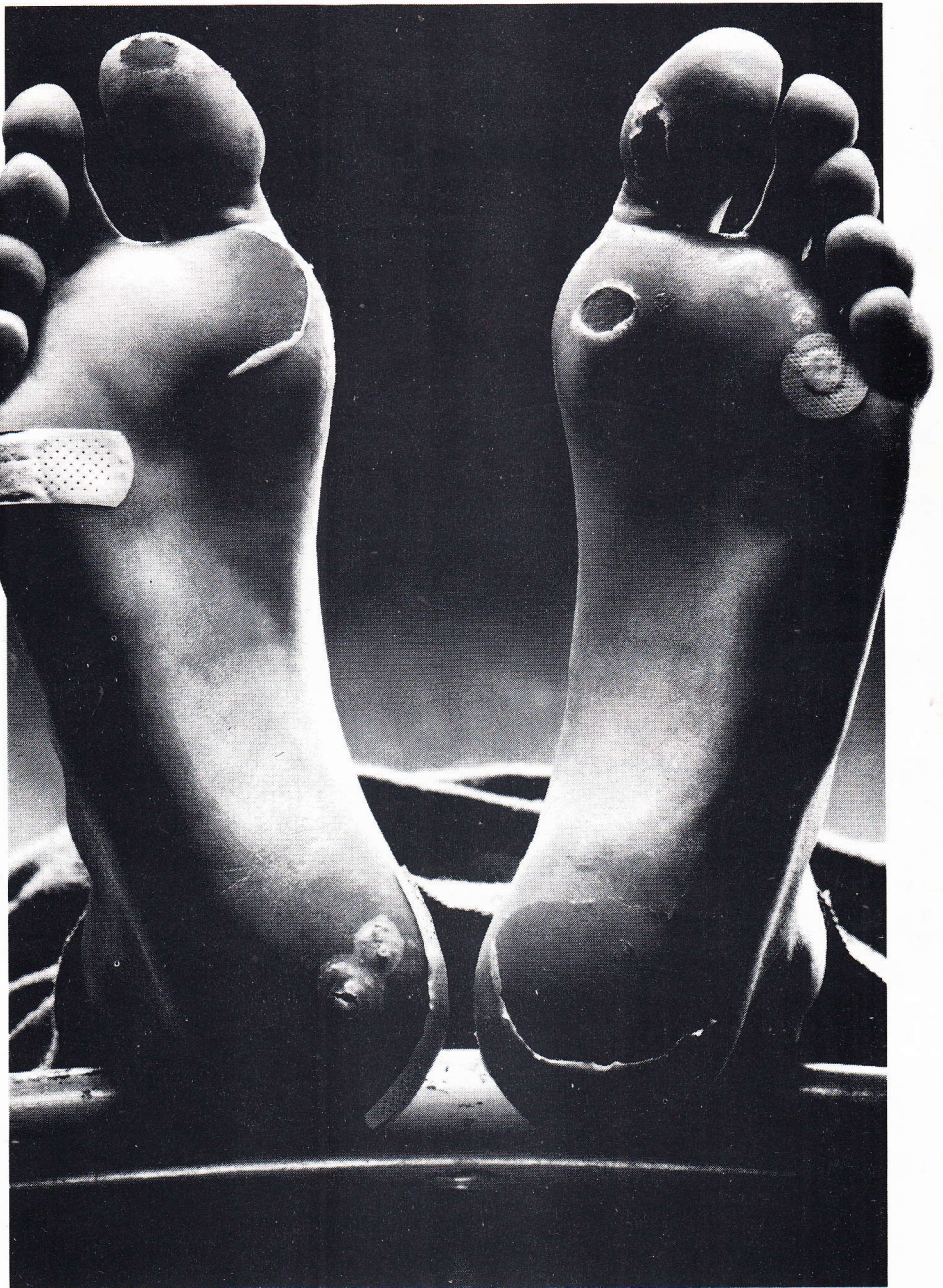
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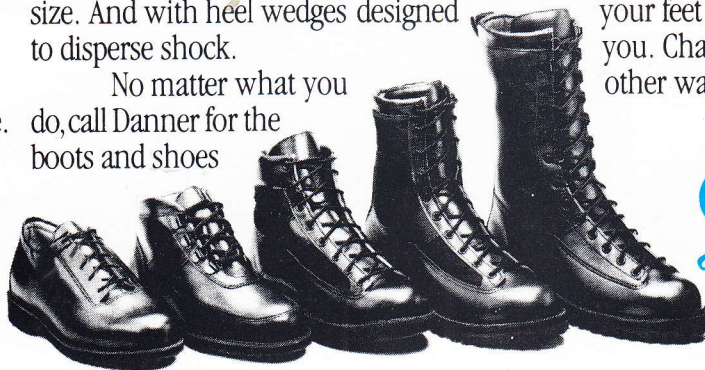
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COMBAT AND SURVIVAL MAGAZINE

Welcome to

COMBAT & SURVIVAL Magazine!

Born as a weekly publication two years ago, our enthusiastic readers have already bought well over 4 million copies. This new, larger monthly format allows us more space for existing features and great scope to include many new ones: more articles, more information, more photos and a lot more gen. But our aim remains the same – to present the skills and dedication of the armed forces.

We deeply believe in the professionalism of the men and women we train and pay to fight our wars and keep our peace. They do not belong to a secret army, and we make no apology for presenting an insight into their skills, tactics and weapons. Not for us the turning of backs that greeted the homecoming veterans of the Vietnam War.

We want to produce a thriving publication that gives you all the information you need on skills and equipment, whether it's for fighting as a soldier or for surviving in the mountains as a civilian. We hope you like the new publication – and want to become part of it. Remember – COMBAT & SURVIVAL is *your* magazine. Write to us, or phone 01-740 8092, and tell us what you think and what you want us to feature. Together we'll make COMBAT & SURVIVAL the best magazine of its kind.

Ian Drury
Editor

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IMPORTANT

All individual combat and personal survival activities involve risk of injury, to oneself and others, and great care must be taken in carrying out any such activities. Expert guidance should be sought and equipment checked for reliability before any activities described in this work are carried out. The publishers cannot accept responsibility for any injury, death, loss or damage which may result from carrying out the activities described in this work.

Picture acknowledgements

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SA80 – Bullpup blues?

The British army's new rifle is in widespread service, but several problems continue to dog our revolutionary bullpup. It's a magnificently accurate rifle, but is it actually tough enough to cope with the rough and tumble of service life? Its habit of dumping the magazine when you were least expecting it seems to have been cured, but we've seen plenty of foregrips secured with masking tape to stop them falling apart. The SUSAT sight steams up in the jungle, so you have to use the emergency iron sights instead. Foreign reaction to the SA80 has been a collective yawn – export sales to date are a big fat zero.



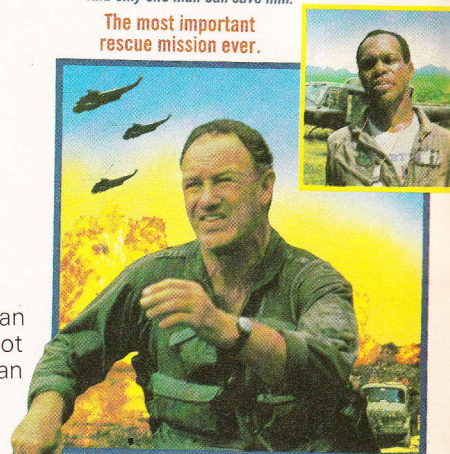
Bundle in the Jungle

Based on a true story, **BAT-21** stars Gene Hackman as an electronics expert shot down over Vietnam when an EB-66 electronic warfare aircraft collects a SAM-2 missile in the tailpipe. If captured, his knowledge would be of enormous value to the North Vietnamese and, indeed, the Soviets. Unfortunately he lands in the middle of a major North Vietnamese concentration, and extracting him is doubly difficult as the enemy are listening in on the radio net.

Escape and evasion is all very well for someone fit enough for 22 SAS selection, but it's rather different when the evader is a colonel in his 50s with no ground combat

Trapped behind enemy lines. A whole army after him...
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Gene Hackman and Danny Glover Star in

BAT-21

experience. But the colonel is a resourceful man and hits on a novel and secure way of telling the circling aircraft where he's heading. A Forward Air Controller (Danny Glover) co-ordinates the rescue mission in a desperate race to get him out before a B-52 strike levels the area.

Numerous rescue missions plucked downed aircrew from right under the guns of the Vietnamese, and **BAT-21** gives a vivid picture of the effort involved. Since Hackman's real-life counterpart was the historical adviser, it is also fairly convincing. Plenty of Vietnam-speak on the radio, some thought-provoking practical pistol and enough simulated napalm to satisfy the most rabid air force enthusiast. Good effort.

Plastic glow worms

These American-made lightsticks provide a valuable source of light in an emergency. By snapping the plastic stick you generate a chemical reaction inside that lights up the tube. They are now available in numerous time settings, up to 12 hours with the option of some shorter-lasting but much

brighter lights. There's no spark, so no danger of an unattended flame. A hook moulded into the top allows you to hang it up as a signal beacon. They are available in a variety of colours – white, green, orange or red. A very good piece of kit. Available from Survival Aids for £2.95.



Big Fifty

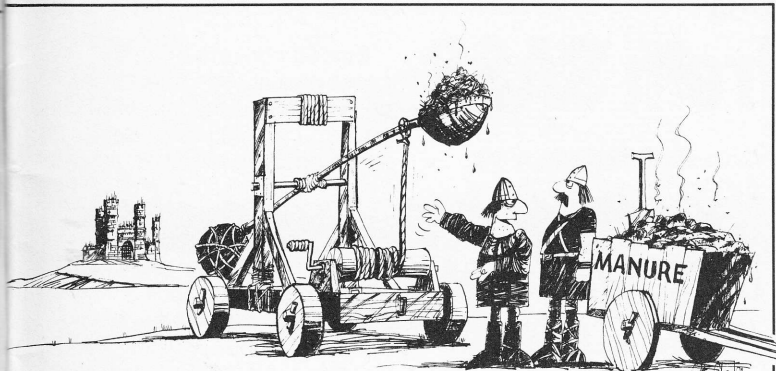
For the rifle shooter with a serious self-image problem, Barrett Firearms are now offering a massive (32lb) .50-calibre sniper rifle. With a x10 scope, they claim a range of up to 1800m. Able to penetrate many armoured personnel carriers, its ventilated forearm and chrome-lined, fluted barrel reduce recoil



to that of a 12-gauge shotgun, so you don't have to be built like Arnold

Schwarzenegger to shoot it. Full details from: Barrett Firearms Manufacturing

Inc, PO Box 1077, Murfreesboro, TN 37133, USA.

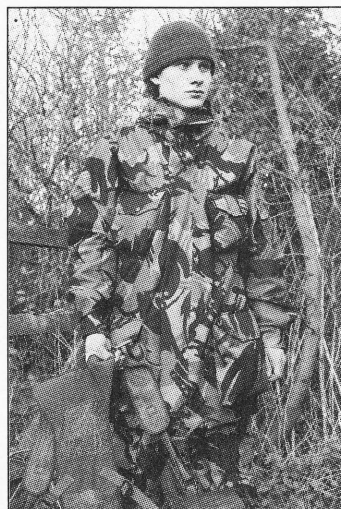


"IT'S CALLED CHEMICAL WARFARE!"

I can stand the rain

We've been testing weatherproof jackets through the winter – the results of our survey are in this month's WHAT KIT? section. One jacket we examined was a prototype weatherproof combat jacket from ARKTIS, and they have just announced full details of the production version.

All the improvements we suggested have been included, plus several more. It is probably the first weatherproof to be robust

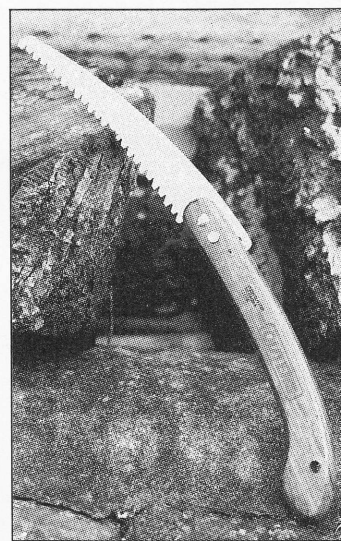


enough to double as a combat jacket and abolish the need to carry two sets of kit. Available from: ARKTIS Outdoor Products, Clifford Road, Exeter, EX4 7BJ. Price: £92.75.

Pocket Chainsaw

Outers have released a range of folding saws with square staggered cutting teeth aimed at everyone, from gamekeepers to pigeon shooters or gardeners.

We tested the 6-in camp saw and found it to be a very useful piece of kit. It tackled all sorts of rough wood in flying style and would be a handy item for infantry or OP work. Blade lengths are 6, 10 or 14 inches and they lock firmly into position when opened. Available from Edgar Brothers, Catherine Street, Macclesfield, Cheshire, SK11 6SG. Prices are £6.50, £8 and £9 respectively. A good buy.



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The Kit Karry smock from SASS

The Kit Karry smock is basically an SAS smock, made in the same lightweight, windproof cotton gaberdine, but the outside pockets – all 12 of them – are made in the much tougher combat jacket material. This, plus a lot of other features – knitted para cuffs and extra inside map pocket, to name but two – makes it an excellent garment.

I purchased my Kit Karry smock because of a couple of recommendations. One came from a friend in Northern Ireland, who finds that the smock fits well over his INIBA jacket, and the



extra pockets enable him to ditch his webbing. The other came from a colleague in the TA, who finds the lightweight windproof shell combined with extra-strength pockets a

real boon. His one criticism is that he doesn't like the foliage loops attached at various points on the jacket, but I think they're one of the best features; and anyway you can have it with or without loops.

I particularly like the slotted buttons. They are fastened to the garment with double-strength tape, so lost buttons will hopefully be a thing of the past.

Zipped pockets on the chest give access to another pocket behind the large chest pocket. I would like to have these on every combat jacket I wear; they're so useful.

All these features plus high-quality manufacture make this a smock that I can recommend too. Price: £93.00 plus £2.50 p&p, from Special Air Sea Services, St George's Works, St George's Quay, Lancaster LA1 5QJ; telephone 0524 64204. State normal chest size and height.

Gordon Lang

The Evil Empire

Count de Marenches/
Christine Ockrent
Sidgwick & Jackson
£13.95

Count de Marenches headed the French secret service for 11 years. *The Evil Empire* is his account of the shadow world of the intelligence services: the unceasing struggle between the USSR and the Western powers. Unlike Peter Wright of *Spycatcher* fame, de Marenches advised world leaders, not just service chiefs. One example of his access to world events was his plan to free the American hostages in Iran: kidnap Ayatollah Khomeini. The details were presented to President Carter, who rejected it on the grounds that you can't treat a bishop, and an old man, in such a fashion!

Another difference from *Spycatcher* is that, unlike Wright, de Marenches does not have an obsession with the technical details of surveillance. Instead we share de Marenches' much wider view of the world, studiously scanning Soviet



interference across the globe and the successes and failures of Western responses.

Delicate questions – such as assassinations by the French secret service – find the author surprisingly candid. The only criticism I have is that since it was first published in 1986 world events have moved rapidly, dating some of his conclusions. Also, I would have retained the original French title *The Secret of the Princes*.

The ultimate fascination of this book is that it gives us a world view usually only destined for presidents and princes. A rare occurrence, well worth the experience.

Oliver Sotherby



Marto-Brewer Explora Survival Knife

Battle Orders Ltd are best known as suppliers of Martial Arts equipment, but they offer a top-range survival knife with a host of useful features. Made in Spain by Marto of Toledo, it has a carbon stainless steel blade tempered to the highest standards, a tough aluminium handle and a polyamide glass fibre scabbard. A mini-survival kit in the handle plus compass, wire cutters, clinometer and set of international codes all add up to a good-value package. Available from Battle Orders Ltd, 71 Eastbourne Road, Lower Willington, Eastbourne, East Sussex BN20 9NR. Tel: 032 12 5182. Price: £69.95.

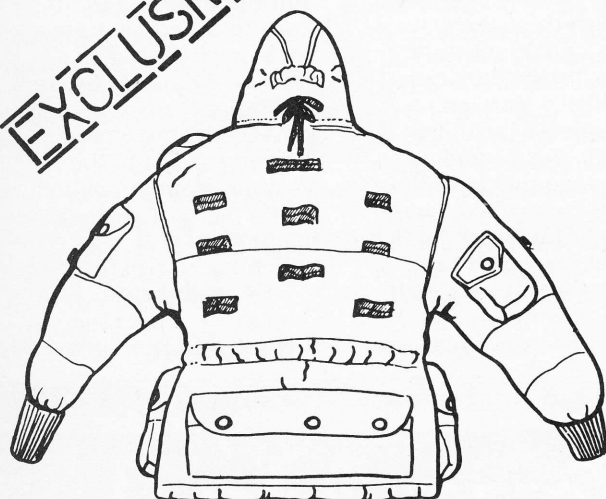




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In Comms Re

Letter from the Front

**Jim Hooper
files this report
from the front
line in Angola**

Listen: I don't know what this is going to become, but it's being written within the sounds of MiGs and Sukhois passing overhead. In the last three days, we've departed positions only minutes before they came under heavy Russian or Cuban-advised artillery barrages. Word came a few minutes ago that both the Cuemba forward command post and Munhango, which we passed through three days ago on our way east, fell this morning.

Moving across Angola is

an experience all by itself. What passes for a road here is nothing more than a dirt track winding through dense bush and forest. From Jamba it was an 11 day journey from one logistics base to another, moving mostly at night in the back of Russian, East German or South African-built trucks to the Benguela Railway line (which hasn't seen a train pass in 13 years).

At each log base we'd climb, tired and dusty from the truck bed and its cargo of food or ammunition, and be escorted by the duty officer to a *jango*, a circular reed and grass meeting hut where a fire burned at the centre of the sand floor.

We would sit on grass-covered benches around the edge of the hut and my escort officer, in the tradition of travellers accepting the hospitality of a village, would recount the course of our journey and whatever interesting things we might have seen or experienced. He would introduce me, explaining that I was here to write a book on UNITA. The officers, AK-47s between their knees, and elders listen gravely, adding words of encouragement to the account, clapping palms gently together and nodding in approval and understanding of the story.

Last year's battle at Cuito Cuanavale, where the Cuban/FAPLA offensive was

Your Mail...

A good range

I felt that the range of subjects in **Combat & Survival** was broad enough to remain interesting over the whole run – unlike *The Elite*. Urban survival, combat medic, defensive driving and self defence could have been emphasised more. Otherwise very good!

C. Walters
Basingstoke

Second World War

I found the weekly **C&S** interesting and easily readable. A lot of the skills apply to my job as a junior NCO in the Territorial Army. It would be very handy if you could produce big wall posters on combat skills and on weapons. I'd like to see more features on infantry weapons in general with more detailed reviews. We

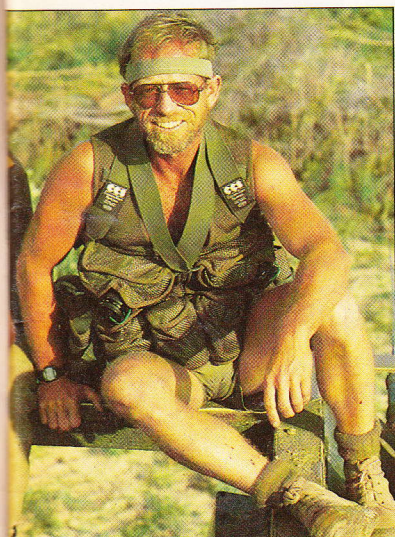


Photo-journalist Jim Hooper is in Angola with the UNITA guerrillas fighting the Soviet-backed government.

beaten back by UNITA with South African artillery and air support, seems to be the only Angolan battle front known about by people in the West. But the northern front, along the Benguela Railway line between Cuemba and Luso/Luena, has seen equally important fighting, though totally without the presence of the South Africans. In October, during last year's offensive, Cuban/FAPLA forces captured a string of towns along the railway. UNITA retook them in December.

We've been hearing MiG-21 and Su-22 fighter-bombers every day now since arriving along the Benguela railway line. I'm sitting at a UNITA forward

command post for the Cangonga front, located in thick forest atop a ridgeline. An hour ago, I watched UNITA heavy mortars pounding the Russian-advised FAPLA 3rd brigade at Cangonga to prevent Cuban-piloted Mi-8s getting in to drop off supplies and pick up wounded. At the moment, a FAPLA battalion that came out of Cangonga this morning is less than two miles away, looking for us.

General Ben-Ben, UNITA's chief of staff, has been talking by radio with four of his companies who are out there right now, trying to set an ambush. One company on their trail made a brief contact not long ago with the trail elements of the battalion, so they know our forces are in the area. My personal protection force of 15 UNITA special forces are digging in around my foxhole. "If the enemy find us," says Captain Martin Chituku, my escort officer, "stay down and don't move. It could become interesting."

A runner is heading south to the nearest logistics base at Kahossi and has agreed to take this with him. If everything works, this should be back in Jamba, UNITA's headquarters in a week or two. Hopefully, there will be a rear-echelon journalist or two there who will carry it out for me. Will send a more complete story as soon as I can.

Ten out of Ten



Over the last few months a few bold shooters have been buying the Colt 10-mm pistol. Whether this will snowball into a 'Delta Elite' revolution will be one of the interesting handgun stories of 1989. Factory ammo is expensive, there's little information available on reloads, and who wants

to change their reloading kit anyway? On the other hand, it has a beautifully flat trajectory and examples we've seen shoot accurately straight out of the box. We're still testing at the time of writing; the full review will appear in the June Issue.

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don't get much chance to see foreign weapons and it would be useful to know more about the latest Russian, American and other kit.

Why did the weekly never cover the Second World War? Vietnam and the Arab-Israeli wars obviously have their lessons, but they were fought under quite different conditions to what we could expect in a future European war. I would like to see more features on, say, armoured warfare in Europe or the battles in big cities like Stalingrad.

J. Chard

London W12

Preparing for a fighting future

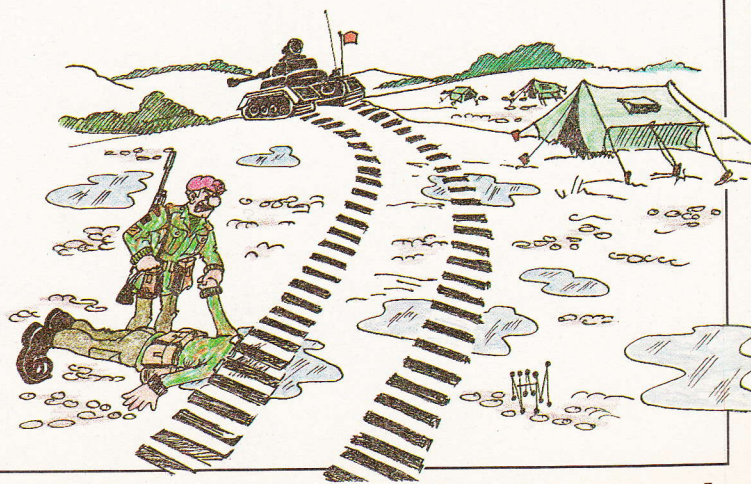
The weekly version of **C&S** kept me one jump ahead of the competition in the Cadet Corps and is helping me prepare for joining the regular army. Can you do more detailed articles on all the main infantry skills?

T. Hayden

Wapping, London

This is your magazine — write and tell us what you would like to see. We are already taking up some of your suggestions, so keep the letters rolling in.

"WHAT HAVE I TOLD YOU ABOUT DRINKING OUT OF PUDDLES ON EXERCISE"!



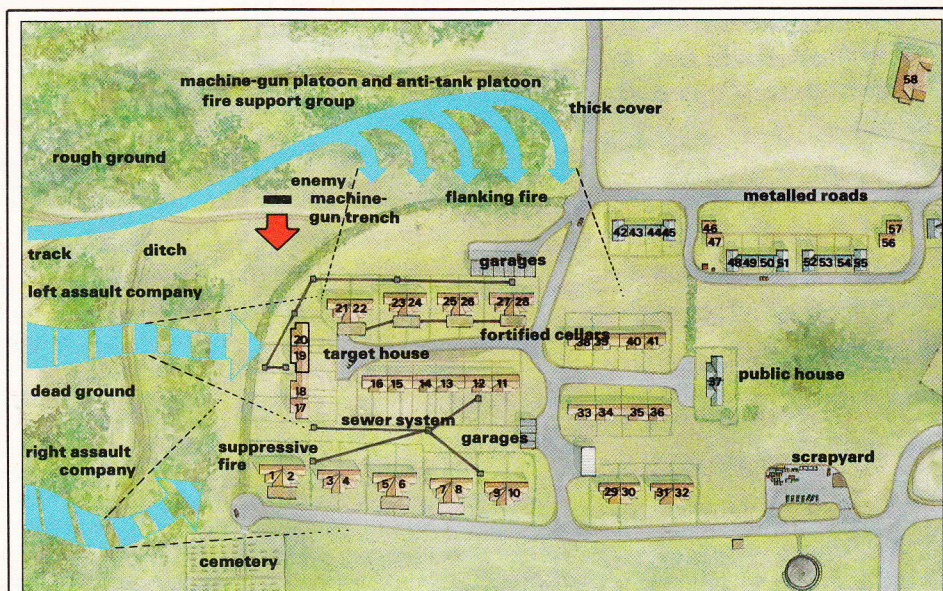
FIGHTING IN BUILT UP

Fighting in towns is now a key role for the infantryman. In this scenario we follow a British battalion counter-attacking Soviet forces, explaining the skills you need to win the urban battle.

At 0530 hrs: you are now on the start-line 600 metres from your objective – the village of Steinmetz. Occupied by Soviet paratroops, it blocks the way to the bridges over the river Weser that were seized by Warsaw Pact airborne forces just as the invasion began. Enemy ground forces are advancing rapidly from the East German border 65 km away. British forces must work fast to recapture the bridges, or Soviet tanks will smash deep into our operational area.

The village consists of about 40 houses around a road junction. Recce platoon, who led you to the startline, estimates

From the start line, out of sight of the village, the assaulting companies crawl forward to get as close as possible to the edge of the village before the enemy realise they are being attacked.



Plan of attack

1 The attack is two companies up with two in reserve. The fire support group (machine-gun platoon and some of the anti-tank platoon) has moved forward on the left to shoot into the village from the north. The mortar platoon has established a base plate

3 km to the west and will produce depth fire in the village. The assault companies crawl forward with two platoons up and try to get as close to the objective houses as possible before they are spotted. Once the firefight has started One Company on the left will bounce the first house.



AREAS

Taking The First House

by 'Goodwood'

that three enemy companies are defending it. Your battalion will attack 'two up and one back': two companies assaulting with the third in reserve. There are no artillery or aircraft available, so the battalion must provide its own fire support. The machine-gun platoon is on the left flank and the 81-mm mortars have occupied some woodland a couple of kilometres behind.

It's a silent attack. A preliminary bombardment would simply give the game away. The closer you can get to the edge of the village without being seen, the better your chances. Don't bunch up: once the enemy know they're under attack they will probably bring down pre-registered mortar fire in front of their position.

Your platoon's objective is a group of three houses. Crawling to within sight of the village, you pop your head up to

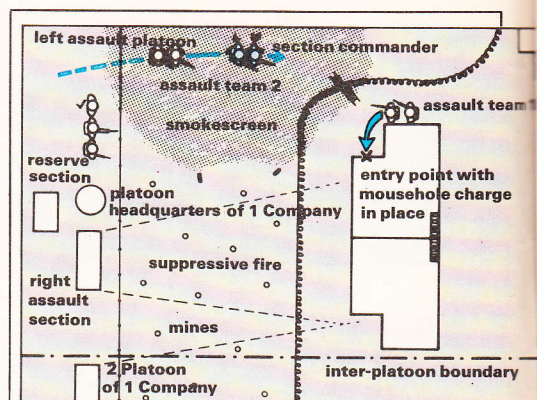
Once in amongst the buildings, remove all field camouflage: a helmet covered in grass and twigs doesn't exactly blend into an urban background. There are purpose-made FIBUA camouflage suits, but don't expect to be issued with one. Your best bet is to obscure the green/brown of your camouflaged clothing with brick dust and ash.





Arriving on the edge of the village, check that the buildings you're looking at are indeed the ones marked on the map.

Below: The leading bomber/entryman team race towards the first house. Everyone else fires on the village to suppress the enemy fire and give the assault team the best chance possible. The troops here are still equipped with SLRs; the new SA80 is better suited to FIBUA, since it is shorter and you can carry more ammunition for it.



2

Assault on the first house

The assault companies fire over the whole frontage while No. 1 Platoon is given the task of gaining a lodgement in the first house. To start the attack, an assault group throw smoke and drop a ladder over the barbed wire and then run to the blind side of the building under covering fire.

snatch a quick glimpse. Check the map – yes, you're heading for the right buildings. Confirm that all three section leaders have recognised them too.

Your attack goes in an hour before first light so that the enemy won't get a good shot at you on the final approach. However, you've still got to cover about 100 metres of open ground leading to the outskirts of the village. On the way you'll have to deal with an enemy machine-gun post that is sited in enfilade – shooting across the front of the village.

Think sewer

A word of warning: an outlying post like this often marks the edge of the sewer system. Few troops will occupy a position with no escape route. If there's time before the assault you should be able to check the sewer plan: it offers a possible route in and around the buildings but is easy to defend with mines and booby-traps. On the other hand, it could offer a concealed approach into the heart of the enemy position.

Another platoon will begin the attack by taking out the machine-gun post with a 66-mm anti-tank rocket followed by grenade attack under cover of sustained fire from the GPMG group. Then, using fire and manoeuvre, you'll get up to the first houses and storm them.

Moving in contact

1. Keep off killing grounds (streets and open places).
2. Plan every move beforehand and advance only in short dashes from cover to cover.
3. Never dash in straight lines; always zig-zag.
4. Don't look round cover at head height.
5. Don't go over an obstacle if you can go under.
6. Roll over walls with your body flat along the top – don't cross in an upright position.



Lying in the pre-dawn murk, the silence is almost oppressive. A couple of blackbirds warming up for the dawn chorus are your only distraction. A casual observer could walk within 20 metres of the assembled assault troops and never know he was under the guns of 120 men.

Suddenly, all hell breaks loose. The enemy machine-gun post is raked by the GPMGs, you open up on your target houses, and the whole front of the village erupts with fire. Now that the battle is under way you can call in the battalion mortar team to lay down smoke and High Explosive. Smoke bombs screen your advance over open areas while HE rounds detonating in the village prevent the enemy moving about or using the roofs and top storeys of the buildings.

There's no cover over the last 50 metres to the first house. While two sections of your platoon lay down a heavy volume of suppressive fire, one section

goes for it. Two men lead the assault, covered by the rest of the section. You throw an aluminium ladder over the barbed wire in front of the buildings, then race up to the wall. You can't afford to lose any time now. Avoid the doors and windows; that's where they'll expect you. You place the mousehole charge against the wall and blow your way in.

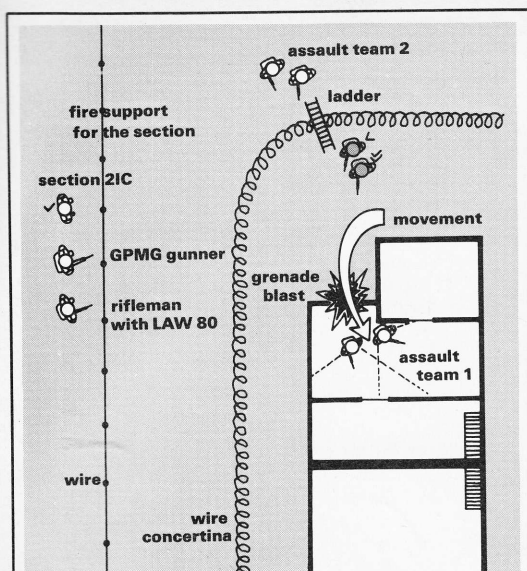
Blowing your way in

Don't use a 66-mm LAW to gain entry: if you fire it into a room, you'll probably spoil someone's day but it won't make a big hole in the wall on its way in. Although a 66-mm round will kill anyone standing in its path, it won't do much damage inside because it doesn't contain enough explosive. An 84-mm Carl Gustav is more likely to inflict casualties, while a 120-mm HESH round from a Chieftain tank will definitely spill the coffee. However, you can't count on

Shooting at an enemy-held building

1. Fire at weapon flashes from windows and around the edges of doors/windows.
2. Fire at any loopholes you see cut into the brick.
3. Fire at the roof to smash the roof tiles, to eliminate enemy in the roof space and create a possible entry-point.
4. A house built from light materials such as brick can be penetrated throughout by GPMG fire. Aim a few inches above where you think the floor is.
5. Use 84-mm Medium Anti-Tank Weapons against the ground floor at waist height near one of the windows.
6. MILAN anti-tank missiles are useful for taking out houses on the edge of the village, but remember its practical minimum range is about 400m.
7. Fire into any suspicious cover outside the building which could conceal the enemy.





3

Clearing the first room

The assault team blows a hole and rushes through. Move away from the entry point, then fire into anything that looks nasty. As soon as they have cleared the room they shout "Room clear!" and move to cover the next room.

having armour support.

The mousehole charge detonates, blowing a man-sized hole in the wall. In the wake of the explosion, the entryman ducks into the building and fires short bursts from his SA80 at anything that could shelter an enemy soldier.

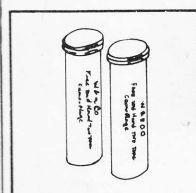
Unless you're going in straight after you blow a hole in the wall, your entry must be preceded by a grenade. The two-



Above: Hanging on the old barbed wire – make sure you're carrying ladders and/or logs to throw over a wire obstacle. The British Army covers its obstacles with fire, and you must assume that the enemy does likewise. The assault team needs plenty of accurate covering fire if it is to get into the first house. Practice using live rounds is essential.



Right: On exercise you can rarely blow your way in with a mousehole charge, so you have to use the doors and windows. In real war they are likely to be booby-trapped and/or barricaded. Here the entryman bursts in after the grenade has gone off but before the enemy has had a chance to recover.



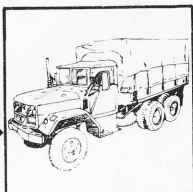
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Dealing with snipers

Built-up areas are a sniper's paradise. Snipers can be a major problem, delaying your attack and restricting movement. It's one thing to face the general hazards of machine-gun and mortar fire, but knowing there's a trained marksman waiting for you is something else.

1. Use smoke to cover your movement.
2. Use your snipers to hunt him out.
3. Detach a couple of machine-gun teams to suppress him if you spot him.
4. Volley-fire 66-mm LAWs or fire grenades at his suspected location.
5. Detach a platoon to put an attack in. Be careful – one good sniper could hold up a company; correctly sighted, he could slaughter a whole platoon and then disappear.

Once inside, get away from the entrypoint. Practise firing back to back – the room is likely to be filled with smoke, and unless you know instinctively what your oppo is doing you could shoot each other.

man team of bomber and entryman is the basis for FIBUA tactics: the bomber wears a grenade vest packed with L2 fragmentation grenades, which he posts through the entrance just before the entryman goes in. The eight-man section is divided into four pairs: two bomber/entryman teams, the section commander and linkman and, lastly, the second-in-command and one other LSW gunner.



The bomber follows the entryman in and they shoot at the walls and ceiling for good measure. Get away from the entry point as quickly as you can, then work back to back so you don't hit each other. Remember that an interior wall that is not load-supporting offers about as much protection as cardboard.

You're also looking for crawlways the enemy may have made between rooms. If the enemy has reinforced the upper floors with sandbags, the floor will have to be shored up to take the extra weight. If he hasn't, then your rounds will go straight through. Start on the ceiling above the ground floor windows: there's probably a matching window above, possibly with someone standing near it.

The link men

Seeing the first men inside, the section commander follows with the link man. He will provide the vital communications link with the rest of our forces. A second bomber/entryman team then fol-

How to gain entry to an enemy-held building

1. The 120-mm HESH round from a Chieftain or a 105-mm shell from an SP gun will blow a hole big enough for a fully equipped infantryman to get through.
2. Concentrated bursts of 7.62-mm machine-gun fire will produce entry holes in brick-walled houses. You can use the same method on the roof tiles.
3. Four-lb 'Mousehole' charges or strips of CLC (Charge Linear Cutting) will blow a man-sized hole through most walls. The only problem is reinforced concrete, where the steel grid will usually survive.
4. You can use existing doors and windows – the enemy won't have time to booby-trap every single one, so save your mousehole charges for the hard targets.
5. Smash a hole in the roof with a sledgehammer.

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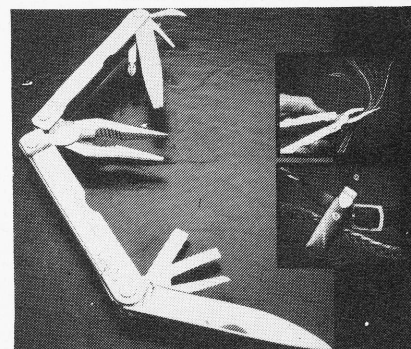
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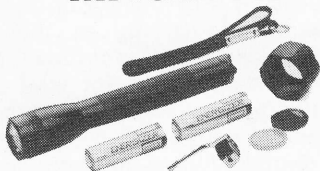
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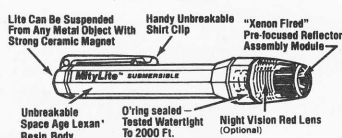
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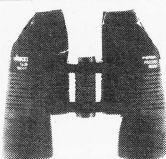
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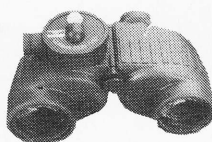
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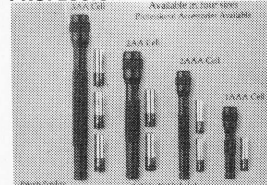
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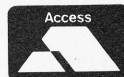
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Modifying your personal kit for FIBUA

Reduce the weight of your kit to a minimum. Get rid of all non-essentials: carry only water, extra first aid kit, any specialist equipment needed – and, above all, masses of ammunition.

1. Strip your webbing down so that you can move easily and freely.
2. Riflemen may find chest webbing a better option for carrying ammunition; bombers should use grenade vests.
3. Carry extra morphine and shell dressings.
4. Assault teams should have folding ladders, grappling hooks, knotted ropes plus sledgehammers and crowbars.
5. Damp yourself down with water so that you won't readily catch fire. Remember: Warsaw Pact forces are equipped with flamethrowers.
6. Since you're unlikely to be issued with FIBUA camouflage, cover yourself in brick dust and ash.
7. There will be a lot of broken glass about, so wear gloves and the issue heavyweight trousers, not jungle lightweights. Knee and elbow pads are essential.
8. Carry a small quantity of high-energy food.

lows, over the barbed wire and on towards the house. A loud bang and a scream sound out above the general bedlam: the enemy have scattered some anti-personnel mines in front of the building. It's not a comprehensive field – the first four men all got through – but it's a savage reminder that an enemy who knows his business is going to mine and booby-trap wherever he can. His resources may be limited: these men only

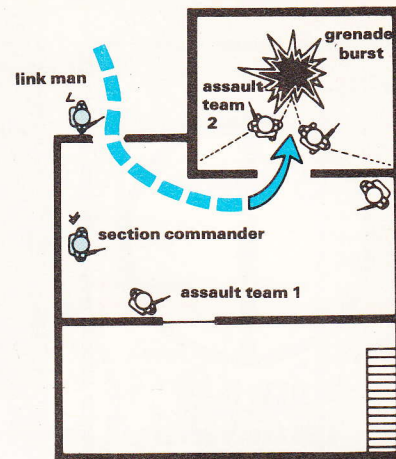
have the supplies they dropped with, but you can't expect an attack like this to run smoothly.

When the first pair into the house shout 'Room clear!' the section commander and linkman join them in the first room. The second assault team should now pass through and storm the next room. This may be through a doorway or through a crawlway the enemy have knocked through the partition wall. The section commander shouts 'Grenade!' and the grenadier posts one in. It goes off, the commander yells 'In!' and the entryman follows through. The section second-in-command and the remaining rifleman go on to tackle the next room in the same way. The section commander co-ordinates the action inside the house but stays in comms with the linkman, who remains by the original entryhole.

The noise factor

Fighting in built-up areas means that a large number of troops are concentrated on a narrow frontage. The frequent use of anti-tank rockets and GPMGs to support the assault produce a deafening noise that makes communications very difficult – and they are already hard because once you get into the village, remaining in visual contact is impossible. Don't assume everyone can see what you can

Fighting in built-up areas concentrates a large number of troops on a narrow frontage, but although you're close together communications are very difficult. Buildings play havoc with radios, so you'll have to make greater use of visual signals. Shouting above the noise is all but impossible.



4

Moving from room to room

The section commander moves into the house, dropping the linkman off at the entry point, and is followed up by assault team 2. They clear the next room in the same way as assault team 1.

Pass the ammunition

Ammunition resupply is a serious problem in FIBUA. Unless you practise moving up the ammunition, you will be in serious trouble.

1. Each fire team should carry a small ammunition reserve in a patrol pack.
2. The reserve section under the platoon sergeant is organised as an admin section carrying the platoon reserve ammunition and patrol packs.
3. As stretcher bearers come forward to collect casualties they can bring up ammo from the company reserve.
4. The assault section should carry as much ammunition as they can lift and dump some of it with the fire support group prior to the attack, so that they can still move at speed.



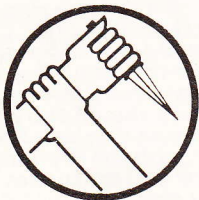
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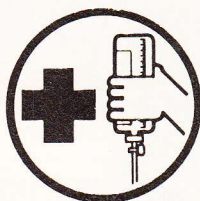
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The key to survive FIBUA is to move in short dashes, always hard-targeting – and don't try to move too far in one go. Note the 84-mm anti-tank weapon being brought forward on the right. A volley of 84-mm rounds ahead of the assault team can work wonders.

Although the arrival of SA80 and LSW removes the GPMG from the infantry section, the 7.62-mm machine-gun remains one of your most useful weapons in FIBUA. The heavier ammunition will chew through roofs and brick walls alike: used inside to clear a hostile building, it is devastating.

see: use the radio, runners and even field telephones to keep communications going. If you don't, the attack will lose momentum and eventually break down. The keys to success are limited objectives, tight control, and plenty of link-men who can tell the following troops what's happening.

With each of the two assault teams



Clearing a room

1. Don't expect grenades to kill the enemy; always follow up with fire.
2. Once in, move quickly away from the entry point and fire into anything that could conceal the enemy. Watch for 'coffins' – individual fire positions completely covered by sandbags or earth-packed furniture.
3. It's easy to shoot each other by mistake in all the smoke and confusion. Stand back to back and clear the room systematically.
4. Once inside, shoot through the walls into the next room if they are of light construction. A GPMG is particularly useful.
5. Shoot into the ceiling and the floor if there's a cellar, but avoid stone floors and ceilings for obvious reasons.
6. Watch out for booby traps, mines and demolition charges, and for mouseholes concealed behind furniture.
7. Mark the entry points with spray paint as you go so that everyone uses the cleared route.
8. Be very careful when throwing grenades upstairs. What goes up can come down unexpectedly!
9. If you're going through a door to the next room, shoot through it first. Look for hinges to see which way it opens.
10. Think very carefully before starting fires to drive the enemy out. It can be a double-edged weapon.

clearing every other room and moving through each other in the process, the section will capture the whole building. But if you have to fight through more than about six rooms, you may find it best to go firm there and send another section on to tackle the rest. Keep looking out for demolition charges: the enemy may have wired the house so that he can

blow it with the assault party inside, leaving them dead in the rubble. This was a common tactic in World War II and not easy to spot as you raced through a building full of smoke, firing automatic weapons. One giveaway is a building with its back wall blown out. The idea is for you to storm the front and find yourself eyeball to eyeball with a machine-gun next door.

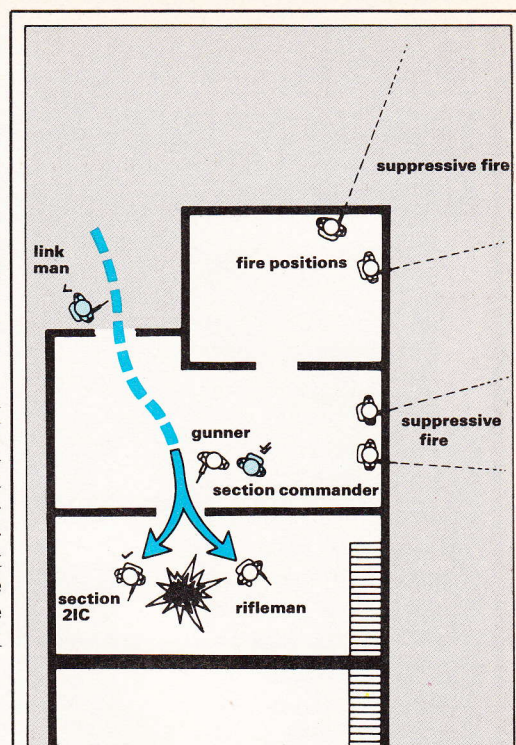
A hoarse cry of 'Room clear' from upstairs signals that the house is now captured. But this is no time to switch off. Scattered, knackered and low on ammunition, you are at your most vulnerable to an enemy counter-attack. Defenders who know their business will not sit in their positions and let you take them one by one. They'll launch surprise attacks to recapture positions and catch your assault off balance.

Counter attack

Your first task in reorganisation is to get your Light Support Weapons covering the most likely direction from which the enemy could counter-attack. Every man shouts out his ammunition status and reports any casualties. The section commander radios back to the platoon commander, telling him the house is clear and what state the section is in. Meanwhile, the linkman shouts 'House clear!' to the nearest man in the next section, so the message is passed verbally back to the platoon commander just in case there's a problem with the radio.

You'll find you get through incredible amounts of ammunition in FIBUA. When you reorganise you'll probably have to redistribute the remaining ammunition.

While most of the section deploys to



5

Clearing the floor

The section commander marks the entry point to the cleared room and calls in the rest of the section using his linkman. When the support group arrives he uses them to clear the next room. The gunner gives the adjoining room a liberal spraying with GPMG fire through the plaster board wall and ceiling. The section 21C and a rifleman then post grenades and clear the room in the normal way.

defend the building against counter-attack, there are several other tasks you can't forget. Check for any cellar entrances: no good covering the windows if the enemy suddenly boil up through an unguarded basement.

Give immediate first aid to any of your men who need it and pass them back down the line. If you took any prisoners, make sure they are disarmed and then use them to help carry back the wounded.

Search the enemy dead for anything of intelligence value, and drape some of the bodies out of the windows as a clear sign the building is under new management.

So far the assault has succeeded in reaching its first objective: the houses at the end of a cul-de-sac which commands the whole length of the road. The way the fire positions of the support platoons are sighted, the houses on the left can be taken under fire from the rear by the GPMGs. You can call up support over the safe ground you've left behind you and they will deploy in and around the houses you've captured. Now you can look forward to the truly awesome task of advancing up the street itself. It's now 0552 hrs, and your attack has been in progress for just 22 minutes. Feels more like a week.

Next issue: Having captured the first building, you must now fight house-to-house to clear each street of enemy forces.



Getting the best from your

SURVIVAL

A 'survival knife' has to be everything from a hand axe to a fine skinning blade. Like many multi-purpose tools it can be a 'jack of all trades but master of none', but with a good survival knife and plenty of practice you should be able to tackle all the important tasks. Mark Hillard puts the Wilkinson Sword Survival Knife through its paces.



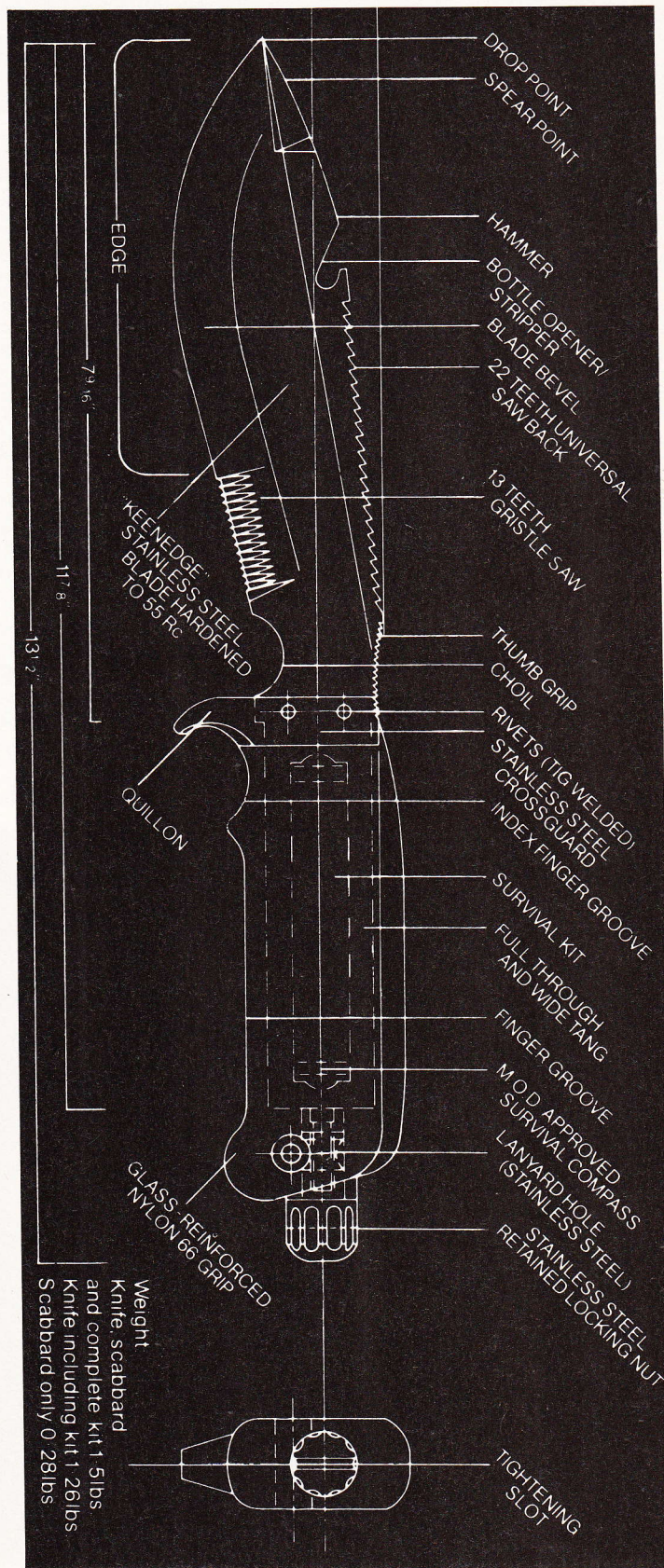
SAFETY

Survival knives are not toys: soldiers on exercise are constantly injured through carelessness or just crass stupidity. Follow these rules:

1. The only time your knife should be out of the scabbard is when you are doing a job of work.
2. Always carry a first-aid kit when you carry a knife, and tape a shell dressing to the scabbard.
3. Always plan every cut you make.
4. Always cut away from your body (although there are exceptions, such as draw knifing).
5. Always secure the knife in its scabbard.
6. Keep the blade sharp; blunt knives cause accidents.

Stake pointing

To start off, you can achieve a rough point by chopping the stake to a point on a rotten log or similar. Then, to cut a fine point, curve your index finger around the index finger groove in the handle and place the thumb of your other hand on the thumb grip. With the work piece held in that hand, push forward with your thumb to sharpen.



Weight
Knife, scabbard
and complete kit 1 5lbs
Knife including kit 1 26lbs
Scabbard only 0 28lbs

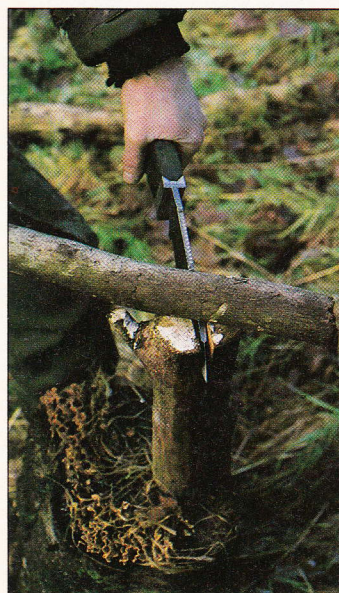


KNIFE

cutting and chopping jobs such as clearing fields of fire, cutting through roots when digging in, or building shelters. On my webbing I carry a bayonet when issued one, but the SLR bayonet is only good at what it was designed for – stabbing the enemy. For anything else, it's useless.

Some soldiers carry fighting knives on their belt, but in view of the number of nasty accidents involving these it's probably best to carry one only on operations. Like bayonets they have no value outside combat, and so it's not worth carrying an extra blade for that purpose alone. It makes much better sense to carry a knife that you can use for all the cutting, hammering and whittling jobs you come across every day on exercises or operations. I keep a very good quality lock blade on me at all times: that and the Golok are all I've ever needed on exercise.

In peacetime you will usually have your Bergen with you whenever you have



Splitting

Place the blade on the log you want to split – do not get over ambitious, especially with hardwoods – and hammer the flat of the blade with a suitable wood hammer. Once the work piece has started to split you can move the blade so that you still have enough of it protruding through the piece to hit with a hammer.



Rasping

To make best use of the universal saw blade for rasping, set the blade into a log at about 45 degrees. Make sure it is firmly in place and support the hilt of the knife against your stomach. Then move the workpiece backwards and forwards with constant pressure over the saw blade.

Firelighting (above)

The metal match works very well. Simply scrape the tip of the blade away from you along the soft metal. You must brace the match on a hard surface, and of course you must have some very fine kindling suitably placed to catch the spark.

Drilling holes (top)

First make four cuts around the point where you want to make a hole to prevent the wood splitting with the grain, and then scoop out the cavity with circular movements of the knife. To cut holes, repeat the procedure on the other side of the workpiece.



Note that the correct position of your hand on the blade is behind the index finger groove. Make sure that the work piece is on a firm surface, and trace the arc of your chop to point of impact before you start chopping. Swing the knife using wrist and elbow action.

to do any heavy chopping, but in war you must be prepared to have to dump kit and run. The answer is to carry on your body a knife that is good for heavy chopping, fine cutting and even fighting. The new Wilkinson Sword Survival Knife fits the bill nicely.

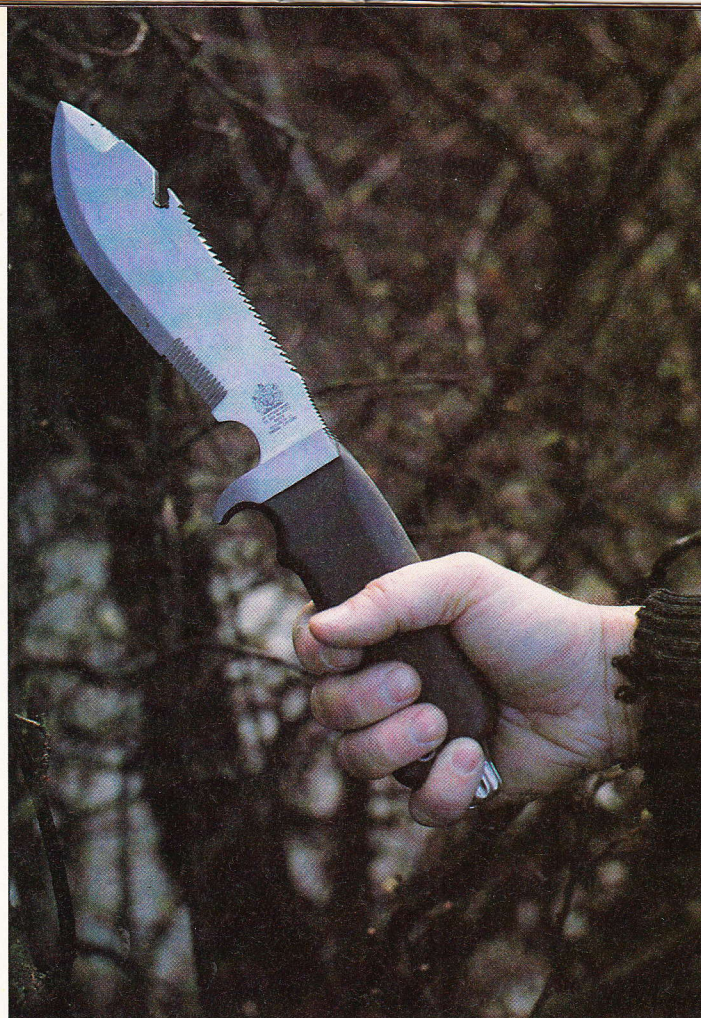
I have used the Wilkinson knife to demonstrate some of the jobs you can tackle with a good general purpose survival knife. These are only a few basic tasks: no doubt you'll come up with plenty of others. Let's have your suggestions!

Slashing (right)

To cut thin foliage etc hold the knife firmly with three fingers round the grip and your little finger wrapped round the locking nut. Swing the knife using elbow action, with shoulder movement for added force.

Stripping (below)

The bottle-opening slot in the blade can be used for stripping thorns off stems. Hold the knife firmly and pull the workpiece through the blade. This is particularly useful when you need to produce a quantity of natural cordage for shelter-building.



Draw-knifing (above)

By splitting a suitably green stick and then reversing the blade in the split, you have made a handle for draw-knifing. If you have a lot of this type of work to do, you can bind the stick above and below the blade.

Sawing (below)

Make sure the workpiece is on a solid surface and is not going to move once you start sawing. Use the universal saw blade as shown, with light, even pressure on the whole length of the blade. On soft wood you may need to stop to clean out the saw teeth occasionally.



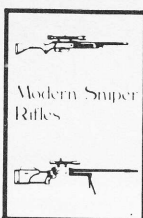
Draw-knifing (Method 2)

For better control of finer work, you can draw-knife using just the blade. Note that for this task the blade above the spearpoint must be kept blunt. Draw the blade towards you, and let the blade do the work.



Gristle saw

The gristle saw can also be used for marking bone, so that when you smash the bone it falls into useful pieces you have already scored out. Do not attempt to chop the bone with the blade.



MODERN SNIPER RIFLES

by Duncan Long

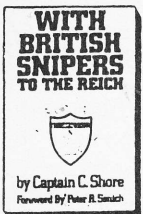
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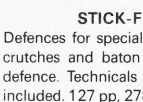


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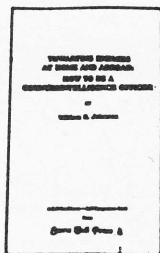
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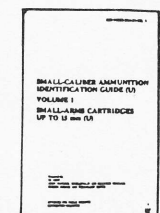
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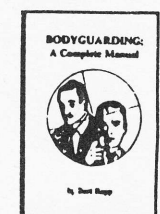
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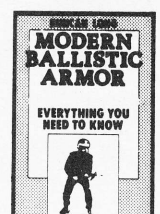
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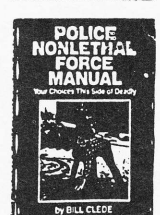
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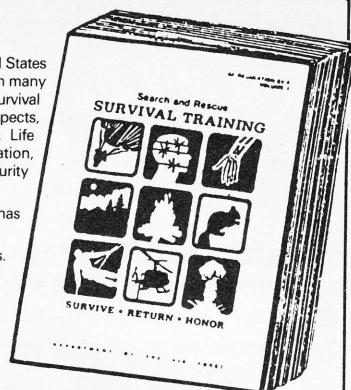
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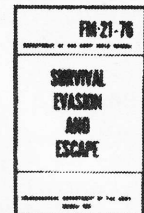
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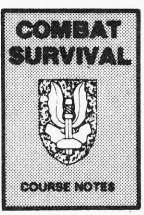
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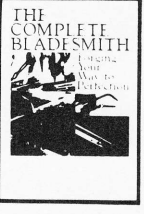
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The Yellow Card is issued to all soldiers serving in Northern Ireland. Its actual title is 'instructions for opening fire in Northern Ireland', and it takes the form of a quick reference guide to the rules governing Army action in the Province.

Anything longer would be of little practical use. Soldiers are legally accountable for their actions, and an unjustified shooting could land the firer in court facing a murder charge. Although the decision to open fire normally rests with the commander on the spot, a lone sentry may have to make up his mind on his own – and the slightest hesitation could cost him his life. It is an awful dilemma that could confront an 18-year-old soldier in the first days of his first tour.

What it says

The card clearly states that firearms can only be used as a last resort and can only be cocked when you are about to shoot. You must issue a clear challenge before opening fire unless doing so puts your own or another person's life in danger or you are already under fire.

You can fire against someone who is:

- ★ firing or about to fire a weapon
- ★ planting or throwing a bomb
- ★ driving a car at someone
- ★ has just killed or injured someone by use of these means and there is no other way of arresting him.

Only aimed shots should be fired; the minimum number of rounds should be used; and all reasonable precautions must be taken to ensure no innocent bystanders are injured.



Left: In Northern Ireland the soldier's job is to uphold the rule of law. Caught between two intractable communities, he is supposed to contain the world's most professional terrorist organisation while remaining within the law himself. IRA supporters demand full legal rights for the gunmen while describing soldiers as 'legitimate targets'.

The Yellow Card: Right

"... it helps to reassure the wider public that the Army does not have 'carte blanche' on the streets of Belfast ..."

These rules may inhibit the soldier's freedom of military action, but they impose a proper degree of restraint upon him. They make him think twice before opening fire. This is important because, although the vast majority of British soldiers are sensible, responsible and disciplined, there will always be the odd weak link – not necessarily a wrongdoer but a young, inexperienced and probably nervous soldier who, despite every precaution by his commander, may find himself in compromising and perplexing circumstances.

The Yellow Card enshrines the principle of minimum force. The

British Army has long believed in only using the minimum force required to tackle a particular situation. Many other armies employ maximum force with the aim of so intimidating the opposition that they go home and keep quiet. Although the British way may be slower, it is the Army's belief that it is fairer and will bring its rewards in the long term.

Perhaps the most important advantage of the Yellow Card is that it helps to reassure the wider public that the Army does not have 'carte blanche' on the streets of Belfast. It upholds the rule of law and ensures that every soldier is conscious that he must act at all times within it. The soldier's role in Northern Ireland is notoriously difficult. The Yellow Card helps him establish exactly where he stands.



YELLOW CARD - Right or Wrong?



Above: Keeping the lid on during the 1982 riots. Proponents of tougher action should remember that when armies intervene in internal security they are at the top of a slippery slope. It is depressingly easy to slide down to the level of the El Salvadoran army. The British Army continues to do a superb job in very difficult circumstances.

The Yellow Card: Wrong

"The soldier should be given complete freedom of action to fire when he judges necessary."

Many situations in Northern Ireland are far from being clear-cut. It may be dark, the view may be obscured by smoke from burning debris, or a terrorist may be using a horde of protesters as a shield or diversion. Incidents often happen without warning, and the identity of a gunman or bomber may only become apparent at the last moment. Soldiers have enough problems without having to contend with the restrictions imposed by the Yellow Card. Stopping to think – even for a split second – about whether or not he is within the guidelines could cost a soldier his life.

The soldier should be given complete freedom of action to fire when he judges necessary. This is the situation in battle during a conventional war: he is bound only by the Geneva Convention. A soldier's life in Northern Ireland would certainly be a great deal simpler in these circumstances.

The Yellow Card should not insist that a warning is given before a soldier opens fire. This alerts the terrorist and may give him time to kill members of the public or the security forces. Although a man who is challenged may often give up, it is wrong to insist on a warning in every situation. The Yellow Card inhibits action. It is a price our soldiers have to pay for the system in which the lives of terrorists are protected.

What would YOU do?

1 You see someone armed with a rifle: would you shoot them before they shoot you? Under the rules you have to wait until you see them actually use it – so if a terrorist who's just shot up another patrol comes running around the corner, your hands are tied. On the other hand, what looked like a terrorist sniper at 200 yards could turn out to be a kid with an air rifle.

2 Petrol bombs are hurled at you by rioters of all ages and in large numbers, so a lethal response is not justified. Or is it? You cannot tell the difference between a petrol bomb flying towards you and a blast bomb packed with nails with its fuse burning, until it goes off. If you open fire, you might kill a child. If you don't, the nails could take your face off and leave you mutilated for life.

3 Soldiers have been killed by having paving slabs dropped on them from the fourth floor of a block of flats. Should you be allowed to shoot back – and, if so, when: at the moment you think they are going to drop the slab? After it's landed on someone? In law, you can't kill someone simply because you see them commit a crime, even if the crime is murder. And can you really say, "I shot her because I thought she was going to throw it at me?"

4 A patrol is surprised by a mob of local yobbos. In the past, soldiers have been disarmed and shot with their own rifles. Can you shoot an unarmed man who is trying to grab your SLR? Hardly, but a deliberate warning shot might do the trick. Unfortunately this happened a few years ago and the bullet landed hundreds of yards away, killing an innocent bystander. This is one reason the Yellow Card insists that all shots must be carefully aimed at the target. No warning shots.

5 Children as young as nine or 10 fire steel ball bearings from hunting catapults. They are accurate too, and can target the gap between the top of your flak jacket and the bottom of your helmet. Collect one of them in the neck and you could be looking at life in a wheelchair, at best. Does this threat justify gunning down schoolboys?

6 Soldiers have had acid thrown in their faces or been doused with petrol. But you don't know how serious the threat is until it's too late. Do you shoot them just in case?



Today it's a joke for the cameraman. Tomorrow? The terrorists' supporters are adept at marshalling children into their ranks, placing soldiers in an impossible moral and legal position. At stake is the constant battle for international opinion.

The Colt Commando

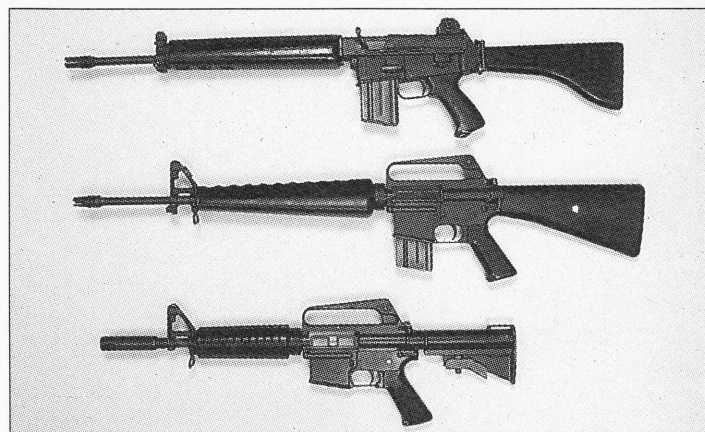
Special Forces' Cut-down C

By conventional definition a chopped intermediate-calibre assault rifle is *not* what most of us consider a "true" submachine gun. Nevertheless, the **Colt CAR-15 SMG** and **XM177** models – essentially short M16s built specifically for elite forces in the Vietnam War – carried the official US military designation of "submachine gun". Chambered for the flat shooting, high velocity, hard hitting 5.56mm×45 round, it was a powerful and mean-looking rig with at least one serious fault.

Armalite

Ever since around 1962, when the first 1,000 **Armalite AR-15** rifles got into the hands of US advisers and Vietnamese troops in South East Asia, they began asking for a modified version. Despite the Armalite, Colt rifle's already short 991mm/39in overall length, light 2.85kg/6.3lb weight, and quick pointing characteristics, they still wanted something smaller. After all, it was reasoned, if the AR-15 was tough, think how tough a sawed-off version would be.

The rights for large-scale production of the Armalite-designed AR-15 had been acquired by Colt in December '59. When the AR-15 began to be produced in quantity over the next couple of years, Eugene Stoner, the little rifle's designer, had already left Armalite. Stoner continued to experiment with small arms and came up with the remarkable **Stoner 63 Weapons System**. This consisted of a basic 5.56-mm receiver/action upon which a range of weapons could be built by



The Armalite family. Top is the gas piston operated AR-18, which failed to attract any major orders. The gas-tube AR-15 with the early-type three-prong flash suppressor is beneath it, from which the diminutive Colt Commando XM177E2 was derived.

adding various barrels, stocks, and feed systems.

This made the folks at Colt very nervous. They had invested much time, effort, and money in a weapon that was in danger of being made quickly obsolete by new developments at the hand of its original designer. In a crash effort to compete with the highly competitive Stoner 63 system being vigorously mar-



The controls layout on the left of the receiver is exactly the same as the parent AR-15. Note the curious US Army designation of sub-machine gun for this chopped-down assault rifle.

ando Carbine

WEAPON TEST

by Robert Bruce

The E2 model, even with the longer barrel and redesigned flash eliminator, still had a massive muzzle blast and relatively heavy recoil. In an ambush the noise and ferocity of the beast may put the enemy off his aim, but it certainly did give him a huge muzzle flash to shoot at.

In their hide-and-seek war with the Viet Cong the US Army needed a light, fast-handling, selective fire weapon to cope with jungle warfare, which consisted mainly of close-range snap shooting at fleeting targets. The answer to the enemy's excellent AK-47 was the Colt Commando, issued to Special Forces.



The Colt Commando



Left: A member of the 5th Special forces Group at An Khe, South Vietnam, surveys the area for potential ambush sites while enjoying a cigarette. Note the CAR-15 slung on a strip or cloth over the shoulder.

keted by Cadillac Gage, Colt introduced its own **CAR-15 Infantry Weapons System** in 1965.

"CAR-15", by the way, comes from the first letter of the words "Colt Automatic Rifle - 15". This has led to much confusion over the years as subsequent models received varying nomenclature from Colt and its large scale customers. "CAR-15" is the family name of all of the AR-15/M16 based weapons in the system from SMG through assault rifle to belt-fed heavy barrel light machine gun. Colt's 1965 sales brochure introduced the 6-member CAR-15 system, including a 381mm/15in barrel carbine, 508mm/20in heavy barrel auto rifle (M1 with magazine feed, or M2 belt feed), and two very interesting ultra-short guns.

CAR-15 SMG

Fielded as a direct response to the impassioned cries from special operations troops in the Republic of Vietnam, the **CAR-15 Submachine Gun (SMG)** was a neat little chop job, just 660mm/26in overall. To achieve this, Colt engineers simply cut the standard 508mm/20in barrel in half, and shortened the buttstock by about 75mm/3in. By thoughtfully providing a lock and slide mechanism, the stock could be extended when desired to the full standard length. Featuring the same efficient 3-prong flash suppressor and all other mechanical characteristics of the regular AR-15/M-16, the SMG was intended not only for Special Forces (SF) use, but also touted by Colt for use by tank, helicopter, and armoured personnel carrier crews, "...where space is a major consideration".

The Air Force, which had been one of the first big buyers of the AR-15, had also been looking for a new survival weapon for use by downed aircrews. Colt, eager to supply their new rifles in any configuration, offered the striking **CAR-15 Survival Rifle**, once again a variation on the basic AR-15 action.

Characterised by a 254mm/10in half-standard length barrel enclosed in a tubular forearm, it was tipped by a cone-shaped suppressor. It also sported a fixed tubular buttstock that would obviously inspire later developments. For some reason - probably survival kit stowage restrictions - about an inch and a half/38mm of pistol grip was also chopped. At a featherweight 2.5kg/5½lbs with a loaded 20-round magazine, it was almost 0.91kg/2lbs lighter than the standard rifle, and separated into two very compact sections for stowage.

Problems

Meanwhile, the CAR-15 SMG went to work in the Vietnam jungles where two very serious problems became immediately apparent, both directly attributable to the weapon's very short barrel. First of all, muzzle blast was unacceptably harsh, quickly damaging the firer's hearing. Then, muzzle flash was

Right: The Commando lives on, and is still a favourite weapon of Marine SEAL teams. This picture was taken in 1985 at the SEAL training centre, Little Creek, Virginia. The Commando and the AR-15 were used by SAS and SBS teams in the Falklands conflict and are still on issue for special operations.



Armalyte experimented with a few Commandos chambered for a true sub-machine gun cartridge, 9-mm Parabellum (left). Next is the ballistic cartridge used for launching grenades, followed by 5.56-mm GI ball and then tracer. The round on the right is Russian AK-47 6.62-mm x 39 for comparison.

spectacular even in daylight, and at night would light up the gunner and his companions like a high-intensity strobe. One burst was all it took to ruin your night vision for many minutes.

Commando

Colt's engineers went back to the drawing board to attempt a remedy, and came back in a few months with the **Model 609 SMG# 1 Commando**. This time the recently fielded US Army M16E1 with its forward assist upper receiver had been fitted with a newly designed sliding tubular buttstock. It also sported a long and mean looking suppressor on the end of its 254mm/10in barrel, wrapped in a sturdier rounded style handguard.

The US Army designation for this limited run of experimental weapons was **XM177E1**, with receivers marked "Commando Cal. 5.56mm" under the usual Colt horse trademark. The Air Force, which had not so far seen the need for forward assist upper receivers, got plain XM177 SMGs (Colt Model 610) for use by their Air Commandos, search and rescue teams, and base security.

The Commando's new look was both eye-catching and functional, with the sturdy black plastic-coated tubular aluminum buttstock having been obviously upgraded from the earlier





CAR-15 Survival Rifle. With a quick release bottom latch, it slid smoothly and locked rigidly forward or backward, and featured well positioned sling loops for comfortable upright carrying in the assault position. Of necessity, the concealed buffer tube inside was shorter than on standard M16s, leading to somewhat harsher recoil.

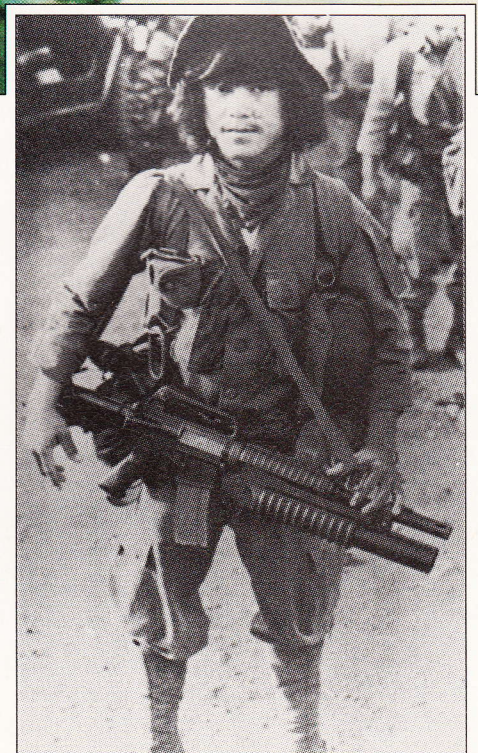
The new "Delta" type wedge-shaped slip ring at the chamber end of the barrel made handguard removal much easier. Also, these new round handguards were both sturdier and interchangeable top and bottom for supply economy.

Suppressor

But the most significant change from the earlier CAR-15 SMG was the XM177's 114 mm/4½ in long suppressor. With an internal expansion chamber and six evenly spaced vent cuts, it was designed to more effectively dissipate both noise and propellant flash. Contemporary accounts indicate that while this did drop the report level by some 10 decibels, there was still much room for improvement.

It is difficult to pinpoint the time frame precisely for these developments, but it's safe to say that all of this took place between early 1965 and late '66. In July '67 the Army's Rock Island Arsenal issued its first technical manual on the even

Right: A Nung mercenary sports a Commando fitted with an M203 underbarrel grenade launcher. The Nungs were ethnic Chinese employed by 'Studies and Observation Group MACV' to take on cross-border raids against the Pathet Lao, VC, Khmer Rouge and NVA. They were also responsible for tracking US prisoners in enemy territory, effecting rescue where possible and training agents to operate in North Vietnam.





newer SMG version, the **XM177E2**, designated by Colt as the “**Model 629**”, coinciding with shipment to Vietnam of small quantities of this minor variation.

Official production versions of the E2 are marked “**XM177E2 Cal. 5.56 mm**” on the magazine well on the left side of the receiver. However, many wartime guns feature XM buttstocks and barrel groups attached to any variety of Colt or Harrington & Richardson (a Vietnam-period alternate contractor) upper and lower receivers, often by GI armourers in country.

Virtually identical to the E1, E2 versions are immediately identified by the 1½in gap of barrel between the front sight support post and the washer at the base of the E1 type suppressor. This is characteristic of its 292 mm/11.5in barrel, lengthened to further reduce noise and flash, and to facilitate launching of rifle grenades.

Grenade launching

The special washer at the suppressor is bevelled on the side facing the muzzle to guide the tail boom when slipping onto the muzzle any NATO standard rifle-launched munition or pyrotechnic of 22 mm inside diameter. This allows the E2 to be used for firing signal and illumination flares, as well as anti-personnel and anti-tank grenades using special high-powered grenade blanks.

As it was the XM177E2 was marginally better than the E1, but was still handicapped by unacceptably loud muzzle blast and flash. Although light, sturdy, hard hitting, and controllable, its effectiveness was severely compromised. Despite its elite forces image, it gradually fell into disrepute with all but the “concrete cowboys” who didn’t have to go out into the jungle on night missions.

Above: The brilliant muzzle flash of the XM177 on fully automatic from the underarm assault position gives an indication of the size of the problem created by cutting down the barrel of a high velocity rifle to 11.5 inches. A hand on top of the hand guard helps to control muzzle climb, making this an effective close-quarter battle technique at around 15 m.

The Commando sits for a portrait with assorted **ALICE** system webbing. The redesigned handguard and telescoping stock actually made the weapon more soldier-proof than the issue M16. Ammunition was usually issued in bandoliers of 10-round stripper clips, seen here with the weapon. The M14 pouches on the belt are designed for 20-round 7.62-mm M14 mags, not Commando 30-rounders, which are better carried in the new nylon **ALICE** mag pouch. The cleaning kit above the weapon is essential for small-calibre weapons firing full auto.



A photograph of a grassy field with a wooden fence and a dense forest in the background. The fence is made of vertical wooden posts and horizontal rails, with two arched openings. The field is covered in green grass and some small plants. The background is a dense forest of tall trees with green foliage. The image has a slightly grainy texture.

By strict definition the only real SMG version of the AR-15/M16 receiver is the new pistol calibre **Colt 9mm Submachine Gun**, introduced in the mid-1980s. As with the earlier full powered 5.56mm×45 XM177s, the 9-mm SMG utilises the basic cast aluminum M16 type upper and lower receiver, with some small internal modifications allowing closed bolt blow-back operation instead of the usual M16 lug-locked, closed-bolt, direct-gas operation. It features the time-honoured slid-



The Colt Commando

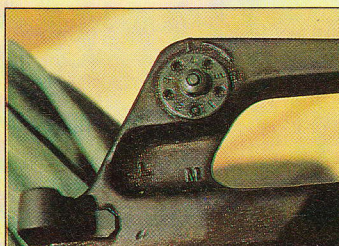
Sight adjustment



The aperture rear sight has two flip-up settings, one for 0 to 300m and the second marked with the letter 'L' for targets over 300m.



The front sight, a protected post, is adjustable for elevation in click stages using the tip of a round as shown.



The rear sight is adjustable for windage, again using the tip of a round. Note that there is a much shorter distance between the front and rear sights in addition to the shorter barrel, so do not expect much in the accuracy department. Suffice to say it is adequate at normal combat ranges, i.e. under 300m.



The stock should always be locked out when firing from the shoulder to give the correct eye relief. The weapon is very fast handling and responsive, and target acquisition with the open aperture sight is very rapid.

Something for nothing?

In the end the Commando and its short-barrelled brothers graphically demonstrate the old adage that "... you don't get something for nothing." Large powder loads and short barrels *always* produce big fireballs and lots of noise. Put a big enough suppressor on the barrel and you're right back to about the same length and weight as that of a rifle. Until there are revolutionary new breakthroughs in propellant and suppressor technologies this will hold true – probably for a long time to come.

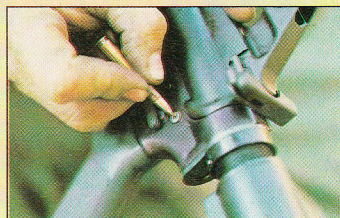
Special Forces Reservist Richard Chandler brought his brand new and unfired "Shorty" out to K.C. Young's range complex at Black Creek, Virginia. The gun is a high quality reproduction XM177E2 made from a combination of GI and commercially produced parts on a Sendra Corporation M16

ing buttstock, 267 mm/10.5 in barrel with "birdcage" suppressor, and a choice of 20- or 32-round mags. Colt previewed an interesting version of this closed bolt sub at the last ADPA International Small Arms Meeting, featuring a very quiet integral suppressor designed and built by Knight's Armament of Vero Beach, Florida.

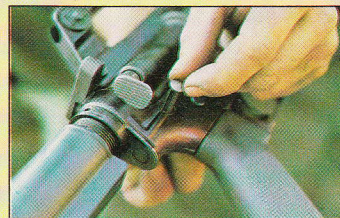
Field stripping the Colt Commando



1 Pull back on the cocking piece and eyeball the chamber to make sure it is clear, then leave the weapon cocked.



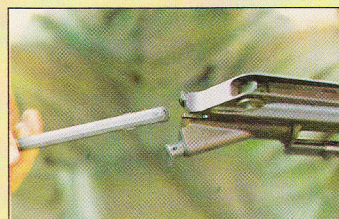
2 The field strip procedure is exactly the same as the rest of the AR-15/M16 family. First, using the tip of a round, drift out the take-down pin on the left-hand side of the receiver.



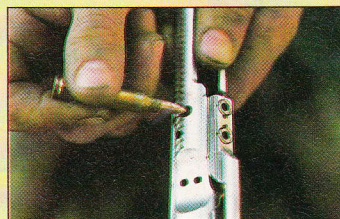
3 Pull the pin out from the right-hand side until you can swing the upper receiver up from the lower receiver. Note: do not pull the locking pin off the receiver; it has a locking clip to hold it there.



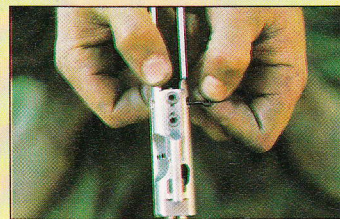
4 The weapon hinges open on a second body-locking pin: not having the hammer cocked makes this part fiddly. Here it is seen locked down. The other protruding part is the bolt hold-open/release device.



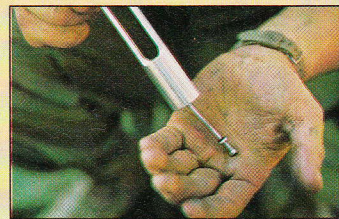
9 The cocking piece can then be removed by pulling it back until the small lugs on the cocking piece match the cut-out in the upper receiver rail and it drops down into your hand.



10 To separate the bolt and the bolt carrier, locate the small split pin that runs through the bolt carrier about 5 cm back from the bolt face, in the cuts for the bolt-forward assist.



11 Push the pin out with the tip of a round and remove it. If you lose this piece in the field you are in trouble: always carry a spare in your cleaning kit.



12 Removing the pin releases the firing pin, which will drop out of the back of the assembly.

The Commando throws out showers of brass on full auto. Burst lengths of around five rounds just about stay on target at 50m, which is acceptable for jungle engagements. Recoil is heavier than on the ordinary M16 as the buffer system is shorter. Do keep your hands on the handguard, not as shown!

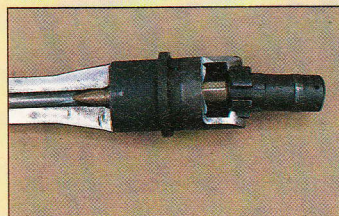
lower receiver, expertly converted to full auto by Richard's father, owner of Chesterfield Armament.

We broke out some Vietnam War vintage 1971 Frankford Arsenal GI 5.56-mm ball ammo packed on 10-round stripper clips in cloth bandoliers. Richard deftly went through the task of loading the supply of 30-round Colt-produced magazines, slipping on the stripper guide and jamming in each 10-round stick of cartridges with practised ease. It should be noted that this takes considerable thumb strength and the resistance increases as the mag nears full capacity.

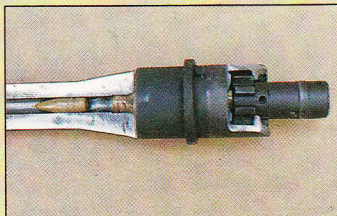
In combat it is good practice to short load the mags by a couple of rounds, but we went ahead and stuffed a full 30 rounds – three strippers – in each one. When all three ammo pouches on his belt were filled with three mags each it resulted in a formidable weight of some 4.2 kg/10 lbs of ammo! But for a total of 270 rounds this is an acceptable penalty considering the firepower available.



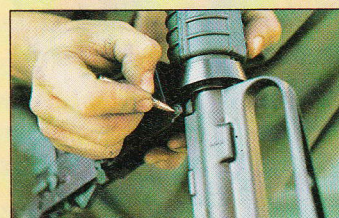
Rotary bolt locking system



The rotary bolt system allows two parts, the barrel extension and the bolt head, to take the force of the high-velocity round, which means that the rest of the rifle can be made of light alloys.



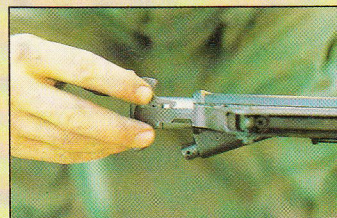
Once the bolt has passed through the barrel extension, the forward momentum of the bolt carrier pushes the cam pin down, rotating the teeth of the bolt to correspond to those of the barrel extension. This locks the action ready to fire the round.



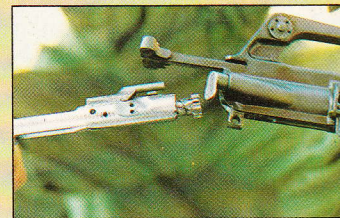
5 For a really thorough cleaning you can separate the upper and lower receiver by drifting out the second body-locking pin in the same way as the first. This is not necessary for normal daily cleaning.



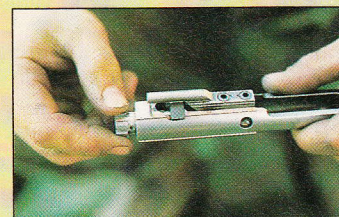
6 This pin is again on a retaining clip. Note that both front and rear sights are on one piece of the rifle, so dropping the rifle in half like this does not affect the zero of the weapon.



7 Pull back on the cocking piece slightly, which will unlock and pull back the bolt and bolt carrier out of the receiver far enough for you to take hold of the bolt carrier.



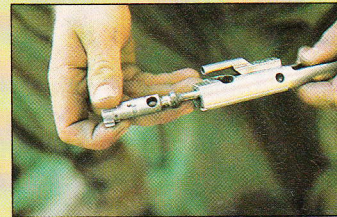
8 Leave the cocking piece where it is and pull the bolt and bolt carrier out and down.



13 Once the firing pin has been removed you can remove the bolt cam pin, which locks the bolt by pushing the bolt back into the carrier. This rotates the bolt head and drops the cam pin into the locked position.



14 Rotate the cam pin through 90 degrees in order to remove it from the carrier. This part of the procedure is very fiddly for those not used to the diminutive size of 5.56-mm rifle parts.



15 Removing the cam pin allows you to pull the bolt forwards out of the bolt carrier.



16 The weapon can be stripped further by removing the two handguards: pull back on the spring-loaded retaining ring to reveal the gas tube. In the field, the upper and lower receivers would not be separated.

Make-ready procedure



1 To load and fire the weapon, insert a loaded magazine straight up into the magazine well until you hear the click of the magazine catch engaging. Then pull back the cocking handle with two fingers as shown. Note that there is a small catch on the left-hand side that holds the cocking handle in position. Depress this first in order to pull to the rear.



2 Let the cocking handle go at the limit of its rearward travel, and let it chamber the first round under its own steam. Do not ride the cocking handle forward: this can cause a stoppage. Next, tap the bolt forward assist button firmly with the heel of your hand to make sure the bolt is fully closed. Earlier models did not have this feature, which made it very difficult to close the bolt if there was dirt fouling the working parts, as the cocking handle is not connected to the bolt.

Moving to the firing line, Richard went through the standard loading drill with the SMG. The M16 can be loaded with the bolt forward or backward, but for maximum reliability for first round feed, the Army Field Manual specifies that the bolt be locked fully rearward with the selector on SAFE before inserting a mag.

Tapping the bottom of the mag when seated and pulling back the charging handle to release the bolt carrier, Richard then hit the forward assist to ensure the first round was fully locked in the chamber. Unlike 99 per cent of the world's SMGs (the Colt 9mm and H&K MP5 are notable exceptions), the XM177 fires from a closed and locked bolt both for accuracy and in order to contain its high-powered cartridge.

After a quick couple of semi-auto rounds and full-auto bursts to confirm proper functioning, we settled down to serious picture taking. The sharp and fast ejection of fired cases from the XM177E2 "Shorty" makes high camera shutter speeds a necessity to capture flying brass on film. Unfortunately, this tended at the same time to be too fast to "see" the brilliant and large tongues of flame emanating from the flash suppressor, captured in only one frame from the whole session!

Muzzle blast

Also, the earplug-packing intensity of the muzzle blast made close camera positions extremely unpleasant. This also makes shooting the gun without hearing protection very foolhardy – an unfortunate circumstance when sharp hearing may be a matter of life or death, such as on night patrol. The problem is lessened when firing from the shoulder, but hip fire is decidedly painful.

Magazines are available in 20-, 30- and 40-round staggered box magazines, although also on the market are some less sensible drum magazines with massive capacities. Ammunition was supplied in cloth bandoliers with 10-round stripper clips for easy recharging.

With the well designed and very sturdy sliding buttstock extended and held against the shoulder, the gun is comfortably positioned and easily controlled. Motor drive sequence photos confirm very little muzzle rise or "walk" (side motion) in full auto bursts. The stock also comes in handy for hip fire by pressing it in between the elbow and the waist or hip. It is very compact when collapsed and can be instantly extended with no fumbling because of its logically designed grab lock.

Mag swap ritual

To signal the need for reloading, all members of the AR-15/M16 family stop with the bolt held to the rear when the mag has been emptied. This makes for fast and efficient reloading by dropping away the empty mag with a jab of the firing hand's trigger finger into the mag release, then shoving a fresh one into the slightly belled mag well.

GIs are taught in basic training to always tap the mag upward with the palm of the hand to make sure it's fully seated, then to release the bolt by pulling back and letting go of the charging handle. Spring tension of the recoil spring and buffer group inside the stock tube causes the bolt to run forward and lock, and an open-palmed smack on the forward assist mechanism is always wise to ensure complete locking. This instinctive three-step ritual goes a long way towards increasing operational reliability under the stress of combat.

As the M16 family will not fire unless they are fully locked, the forward assist is an extremely important feature. The eight locking lugs on the gun's bolt must slip between and behind similar projections on the barrel extension in order to rotate far enough to allow the firing pin clearance to hit the primer of the chambered cartridge. While this is a strong and safe locking system, it is unfortunately sensitive to carbon fouling and grit.

The selector is well positioned on the left side of the receiver so that it can be operated by the thumb of the firing hand. Rotating in a half circle, it follows a logical progression from SAFE through SEMI- to FULL-AUTO.

Following the US Army's accepted practice the "Shorty" features a post front sight and aperture rear sight. As on the M16, the front sight screws up or down for fine elevation, and the rear goes left or right for windage when zeroing. A flip-over L-shaped piece provides the two battle aperture settings: 0 to





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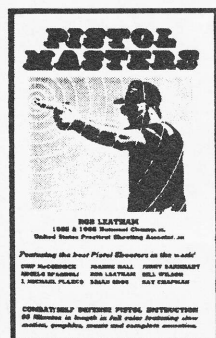
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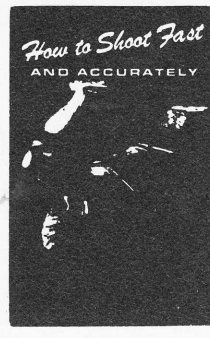
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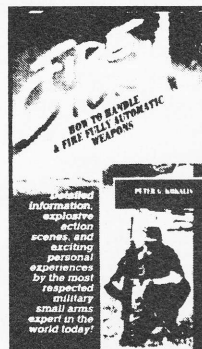
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The Colt Commando

WEAPON TEST

Technical specification: The Colt Commando XM-177E22

DATA

Cartridge: 5.56mm×45 M 193 ball
Operation: gas, selective fire
Method of locking: rotating bolt
Feed: magazine: 20-, 30-, 40-round detachable box

WEIGHTS

Gun: (without magazine and sling) 2.78kg
Sling M1: 0.18kg
Aluminium magazine: (empty) 0.09kg; (loaded) 0.32kg (20 rounds)
Colt Commando: (with sling and loaded) 3.23kg
Bayonet knife M7: 0.28kg

LENGTHS

Gun: (butt extended) 787mm; (butt telescoped) 711mm; (with bayonet knife) 914mm
Barrel: 254mm; (with flash suppressor) 305mm

MECHANICAL FEATURES

Barrel: (rifling) 6 grooves; 1 turn in 305mm; (bore max) 5.6mm
Sights: (foresight) cylindrical post; (rearsight) flip, aperture; (sight radius) 374mm

FIRING CHARACTERISTICS

Muzzle velocity: 924 m/s
Rate of fire: (cyclic) 700-800 rounds/minute
Effective range: 200m

MANUFACTURER

Colt's Military Arms Division, Colt's Industries, Hartford, Connecticut

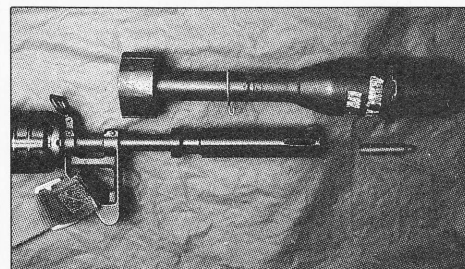
STATUS

Finalised design: not yet manufactured in quantity

SERVICE

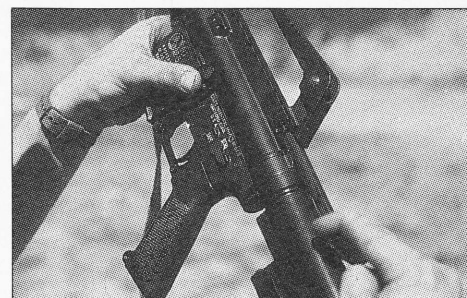
Evaluated by US Army but not taken into use (Special Forces use only)

The stock telescopes out by pressing in on the back part of the catch as shown, and then releasing it so that the pin re-engages in the extended position. The weapon can of course be fired with the stock telescoped down.



The extra inch and a half on the barrel of the XM177E2 enables the full range of rifle grenades to be launched off the rifle using a ballistic cartridge.

The bolt can be locked open by pulling the cocking handle to the rear and pressing in on the bottom of the bolt release. When speed reloading, all you have to do is hit this with the palm of your hand to release the bolt.



When the last round is fired the bolt locks open automatically, so all you have to do is dump the empty, insert a fresh mag and palm the bolt release. Alternatively, you can pull back on the cocking handle to release the bolt. A 20-round magazine can be put down-range in just over a second and the weapon reloaded in three seconds, with practice!



300 metres; and another marked with the letter "L" (long range) for targets beyond 300 metres. Both are well protected against damage and are located above the axis of recoil for comfortable eye alignment in any shoulder-braced shooting position.

Although "Shorty's" kick is a bit sharper than that of the M16 due to its lighter weight and shorter recoil spring group, it is by no means objectionable. With the proper grip and body position, long full-auto bursts are easily managed. Of course maximum effectiveness in most situations comes from aimed semi-auto or short burst fire, but when you need to hose down the bad guys at close range, the XM177E2 does the job.

The XM's tough synthetic ribbed and rounded handguards are well designed and a lot sturdier than those on the M16. An efficient heat shield keeps them from melting down in fast firing action, but rising heat will definitely roast your fingers after hip firing a couple of magazines in full auto with the left hand gripping above the barrel.

Heating up also calls to mind another concern with closed-bolt full-auto weapons like "Shorty" and all other assault rifles. 'Cookoff' occurs when a chambered cartridge in a severely overheated gun is detonated by heat transfer. Depending on the circumstances, this can be anything from merely annoying to fatal to one's companions. This is no problem with pistol calibre open-bolt subs, but users of intermediate calibre assault weapons must be very careful in this situation.

The "Shorty" handles even better than the M16, its light and handy bigger brother. With excellent balance, short overall length, in-line configuration, and hot 5.56-mm ammo, it's a mean little piece of machinery, well suited for daylight action at close to moderate range.

Between Richard and myself we fired about 500 rounds, mostly in long and short full-auto bursts. Although there were a couple of "stove pipe" stoppages, these are attributable to a brand new gun that had not yet been fired enough to break it in for maximum reliability.

The bottom line

Sadly, advantages offered by the short and light XM177s are not enough to offset the twin problems of excessive muzzle blast and flash. Shoot at night and ruin your night vision. Shoot without earplugs and damage your hearing. Time and battle experience have shown it ain't worth the penalty.

Next month: Robert Bruce checks out the UZI SMG with the latest red dot and Lasertronics sights.

“The sky was filled with bricks and petrol bombs.”

The author served several tours in Northern Ireland during the 1970s. This incident occurred when his battalion were patrolling the infamous Falls Road in Belfast.

Fort Pegasus, as we called it, was a collection of single-storey prefabricated buildings, shielded by four 20 ft high corrugated steel walls and fortified sangers on each corner. This fort-like structure was situated inside an IRA stronghold and overlooked the notorious Falls Road, White Rock and the massive Belfast cemetery. There were various rumours circulating amongst the local inhabitants about the purpose of Fort Pegasus. One rumour was that it was intended as an internment camp, and there was certainly no denying that this fortified army camp would not have looked out of place as a German concentration camp during World War II. However, this was to be my platoon's home during our four-month tour of duty in Northern Ireland.

This was my third tour and I had served in most of the cities, as well as the border areas which the Press was now referring to as 'Bandit Country'. However, unlike the Press, I regarded the cities as the most dangerous areas as there were a thousand and one places where you could get zapped by a sniper, walk into a hidden machine-gun or be blown away by a booby-trapped car. Our sergeant used to tell the lads who were on their first tour that to survive you needed eyes in your arse as you had to be able to watch 20 things all at the same time.

“I regarded the cities as the most dangerous areas as there were a thousand and one places where you could get zapped . . .”

The start of the tour was mundane, with men sleeping, out on patrol or manning the sangers that protected the camp. During the early part of the second week of our tour, the Light Infantry, whose ground we could see from the sangers, underwent attacks most nights – they were hit by intense sniper fire, heavy machine-guns and, the IRA's favourite weapon, the car bomb. Although these regular contacts were causing casualties, the lads from the Light Infantry were giving a good account of themselves.

It was about 1300 hours when we



began to get ready for yet another patrol through the streets and back gardens of the Lower Falls. After putting on our flak jackets, checking our weapons and jamming as many rubber bullets under our smocks as possible, we made our way to a prefabricated hut where our platoon sergeant was waiting to give us the latest intelligence updates. Apart from being told the identity of any wanted men, we were also briefed on the latest fatalities to the security forces serving in the province in an attempt to prevent us suffering a similar fate.

Apart from the victims of ambushes and the car bomb, we also heard of the victims of an unidentified terrorist sniper known to us as 'One Shot Charlie'. This individual was noted for his excellent marksmanship and his ability of executing head shots from long distances. He only needed to fire one shot to guarantee a kill: hence the nickname.

Baton rounds go down during rioting in Londonderry in 1981. The rapidity with which a mob can assemble and attack a small patrol has not changed – neither has the ingenuity and aggression of the rioters.

During this particular briefing, we learnt that the previous day two 18-year-old soldiers from separate regiments had been killed due to their lack of experience in urban counter-insurgency. The first incident had occurred during a routine foot patrol in Londonderry where, as in most dangerous situations in Ulster, the enemy had appeared quickly and without prior warning. The patrol had suddenly been surrounded by a hostile mob and one of the soldiers had been singled out before being deliberately separated from the rest of the platoon. During the confusion, the soldier had been disarmed and shot with his own SLR. The crowd had then quickly dispersed, taking the weapon with them.



The second incident had occurred when a Saracen, again on a routine patrol but this time in Belfast, had stopped at a set of traffic lights. At the time, the armour plated vehicle was battened down and safe from most forms of attack, but this changed when the driver saw a sexily dressed young woman standing on the pavement. After telling the rest of the soldiers what he could see, the 18-year-old boy opened one of the ports to take a good look.

As he peered out, he could not believe his luck as the girl smiled and walked slowly towards him. No-one noticed her remove the .44 Magnum from her shoulder bag: they only heard the bang and saw the blood as the large bullet entered the boy's forehead from a range of just a few inches. Miraculously, although the bullet ricocheted around the interior of the vehicle, no other person was injured.

Knowing the facts before going out on a patrol made the adrenalin flow and underlined the importance of being switched on all the time you were away from the relative safety of the camp.

Although we were all armed with SLRs, some of us used to (unofficially) fit a Bren gun mag onto our rifles because it allowed us to squeeze in a few extra

rounds. There were those who said this was a dangerous practice as this type of magazine, in the past, had caused an SLR to jam but we had never experienced any problems when we were zeroing in our weapons on the ranges. After ensuring that the safety catches were on, we cocked our weapons before going through the well-rehearsed drill to enable us to safely leave the camp. First, the men in the sangers would give us the all clear before the huge gates were swung open, enabling two men to race

“During the confusion, the soldier had been disarmed and shot with his own SLR.”

out and cover the other two men out into the street.

The patrol would then split, with two men on each side of the street, using the 'buddy' system of one moves, one covers/one moves, one covers his back. This is where team work really paid off: often your life depended on your mate looking in the right direction at the right time and knowing instinctively when your back had to be protected. While we were cautiously making our way through the streets and alleyways, making the

Land Rover patrols spot-checking the local traffic rarely turned up anything important, but they did make it more difficult for the terrorists to move weapons or kit. The sort of riot that led to the shooting was often used as a diversion when they wanted to get an important individual or weapon from place to place. It is still much the same today.

best use of any available cover, a Land Rover patrol was stopping and searching vehicles at random. Although very few weapons were found this way, it did keep the IRA on its toes and restricted its movements.

I was crouching in the shadow of a doorway, rifle trained on a row of windows on the other side of the street, when one of our Pigs suddenly screeched to a halt beside me. Sergeant Bradstock jumped out and shouted, "Come on lads, B patrol are in the shit." As we clambered aboard the vehicle, two other Pigs and an open Land Rover full of men shot past at high speed and we immediately gave chase. When we arrived at the scene, the first thing we saw was the four men from B patrol with a large, hostile mob in front of them. They had tried to single out one of the soldiers but had pulled back after he had rammed the butt of his SLR into the face of the ringleader. The mob,

Northern Ireland

although screaming for blood, was apprehensive because it realised that these fellers knew what they were doing.

As we walked towards the patrol, the mob was getting larger by the second. We knew one of two things could happen – this was either the typical start of a mass riot or we could find that the crowd, without warning, would quickly disperse, leaving a clear field of fire for a concealed heavy machine-gun. Knowing this could happen, some of the lads found positions where they could, if necessary, immediately return rapid fire.

Volleys of rubber bullets were now being fired and the sky was filled with bricks and flaming petrol bombs. A hijacked double-decker bus was doused in petrol and set alight in the centre of the

“I was crouching in the shadow of a doorway, rifle trained on a row of windows on the other side of the street, when one of our Pigs suddenly screeched to a halt beside me.”

road. Suddenly the rioters ran away as gunmen opened up on us from the upper windows of a row of terraced houses. The last time this had happened, the gunmen had escaped from holes cut in the dividing walls of each house, thus enabling them to escape at the other end of the street while we were storming an

empty building. With this in mind, a Pig full of men rammed the burning bus out of the way and made for the other end of the street. Just as our men got into an ambush position outside the last house, two gunmen armed with Armalite rifles made a bolt from the house into the direction of the concealed soldiers. Only one of the gunmen managed to fire off his weapon before being cut down by a hail of bullets.

When I searched the bodies, I found that one of the dead terrorists was carrying three hand grenades and a phosphorus grenade. If he had had a chance of using these in the confined space of the street, there would have been mayhem and we would have suffered heavy casualties.

SPOT THE KIT COMPETITION

Win an SAS Windproof Smock and many other great prizes!

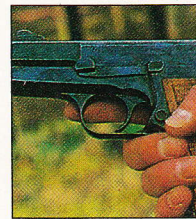
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It's a great competition with great prizes; it's free; and we've made it easy! Not only have we set the questions – we've also given you the answers. All you have to do is sort them out! But beware – there are more answers than questions!

Each of the first 3 issues of **COMBAT & SURVIVAL Magazine**

will contain 6 unidentified photographs – 18 altogether. All the possible answers are listed here. Just decide which of the answers are correct, and then complete the entry form in Issue 3. The first 10 correct answers drawn out of the hat will get the terrific Survival Aids prizes below. Best of luck!

Just identify these photos!



A



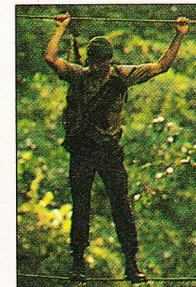
B



C



D



E



F

- 1st Prize: SAS Smock.** Windproof, breathable, showerproof.
- 2nd Prize: 0.6-litre Unbreakable Flask.** Tough, stainless steel and excellent for hot and cold drinks.
- 3rd Prize: Mauser Knife.** Excellent pocket knife with non-slide handle.
- 4th Prize: Trangia 27.** An effective, easy-to-use cooking system.
- 5th Prize: Stainless Steel Mug.** Keeps hot things hot, and cold things cold!
- 6th Prize: GI Wristwatch.** Just like the ones they wore! Tough and water-resistant.
- 7th Prize: Space Pen and Refill.** A NASA design for moon landings.
- 8th Prize: NATO Suunto RA69 Compass.** Has 4x magnification lens, and liquid-filled vial.
- 9th Prize: DPM Zippo Lighter.** A collector's item.
- 10th Prize: Mini Maglite Combo.** Water-resistant torch with amber and red lens.

CONDITIONS

- 1 Entries must be received by 15 June 1989.
- 2 Names of winners will be published in the August 1989 issue.
- 3 Employees and their families of Aerospace Publishing Ltd and of its associate companies are not permitted to enter.
- 4 The publisher's decisions are final.

Here are your possible answers:

- | | | |
|---|--|---|
| 1 US Army Colt M1911A1 pistol | 12 US Army M551 amphibious light tank | 21 British Army WOMBAT 120-mm anti-tank gun |
| 2 US Army M1 Abrams Main Battle Tank | 13 West German Army MILAN anti-tank missile launcher | 22 Survival Aids Gore-Tex jacket |
| 3 Royal Marine | 14 British Army SA80 5.56-mm rifle | 23 Ethiopian Army Adowa 9-mm pistol |
| 4 British Army 84-mm Medium Anti-Tank Weapon | 15 British Army 7.62-mm General Purpose Machine Gun | 24 Israeli Centurion Main Battle Tank |
| 5 German G3 7.62-mm rifle | 16 Honduran Para-Commando | 25 French Foreign Legionnaire |
| 6 Mauser C/96 9-mm pistol | 17 British Army Browning 9-mm pistol | 26 Soviet T-72 Main Battle Tank |
| 7 US Army Dragon anti-tank missile launcher | 18 Lance-Corporal, 2/Connaught Rangers | 27 Afghan Army waterproof poncho |
| 8 Israeli Army Merkava Main Battle Tank | 19 US Army M60 7.62-mm machine gun | 28 Spanish CETME 7.62-mm rifle |
| 9 British Army M109 155-mm self-propelled gun | 20 East German Army T-62 Main Battle Tank | 29 Sergeant, Rwandan Defence Force |
| 10 ICD-1 Thermal Imager | | 30 Yugoslavian Army M76 sniper rifle |
| 11 British Army Issue nylon waterproof jacket | | |

See Issues 2 and 3 for more photos



WITH THE AUSTRALIAN SAS IN VIETNAM

For five years the Australian and New Zealand Governments supplied a squadron of Special Air Service troopers to aid the Americans in Vietnam. Just how many of those modern-day ANZACs had resigned from the British Army and enlisted in the Commonwealth counterparts of their own Regiment "for the duration", like our own correspondent, Captain David Perth, is unclear...

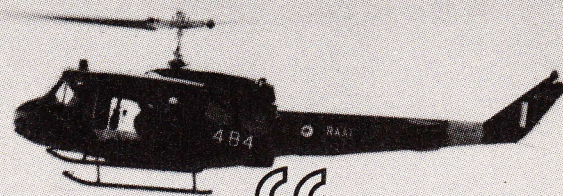
We thought we knew everything there was to know about patrolling in the jungle. After all, the British Army had written the book, after a mass of experience in Malaya and Borneo.

We were wrong. Not dramatically wrong, but enough so that there were valuable lessons still to be learned about dealing with a dedicated, well-equipped enemy, fighting on his own ground and seeing us as an army of occupation; by no means invincible, but not one who would run away just because we shot at him, and whose fieldcraft was at least as good as ours.

Most of the really successful ground operations during that war were carried out by small patrols, from five to 10 men depending on whether the objective was reconnaissance or to inflict casualties.

The idea, put across in at least one training film, that we would find our enemy waltzing down the track, rifle over shoulder and chatting to his mates, couldn't have been further from the truth. If we found him on a track at

By inserting five-man patrols all over Phuoc Toy province, the SAS took the war to the enemy. Viet Cong bases were identified and destroyed. No area could be regarded as safe.



“ In five years' service in Vietnam, the Australian and New Zealand SAS lost one man killed in action, and 27 wounded. They left behind more than 500 enemy KIA. **”**



all, he was moving very well, weapons properly deployed. If he just had a scout group out in front, probing for ambush, we were lucky. Most of the time he had protective flank groups on each side, moving through the jungle itself.

VC weapons handling

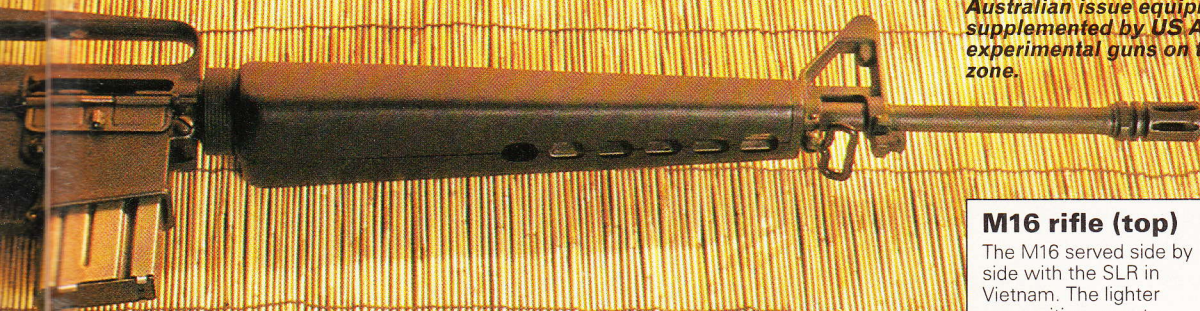
His favourite personal weapon was the AK-47 Kalashnikov, and for a very good reason – it's superb for the job. A truly great fully-automatic assault rifle, simple, robust and reliable. If it's got one fault, it's the click the safety catch makes as it comes off – significant because the Viet Cong's chosen weapons drill calls for a round in the chamber and safety on. His weapons handling was generally very good, though the same can't be said of his marksmanship, perhaps because it's hard for a small man to stop a fully automatic weapon from shooting high.

As well as the AK-47, we came across a variety of other personal arms: the SKS semi-automatic carbine, the RPD light machine-gun and RPG-2 and RPG-7 rocket launchers. These last were as useful against ambushes as they were against the tanks they were designed to combat.



The traditional four-man patrol inherited from the British Army was increased to five strong in Vietnam. In the close jungle terrain, a four-man patrol would have difficulty breaking contact if it sustained any casualties. The unshaven appearance is quite deliberate; a few days' stubble helped the cam cream to stay on. Headbands were worn partly to keep sweat out of the eyes and partly to look like the enemy: in a surprise contact, anything that made them hesitate could make all the difference.

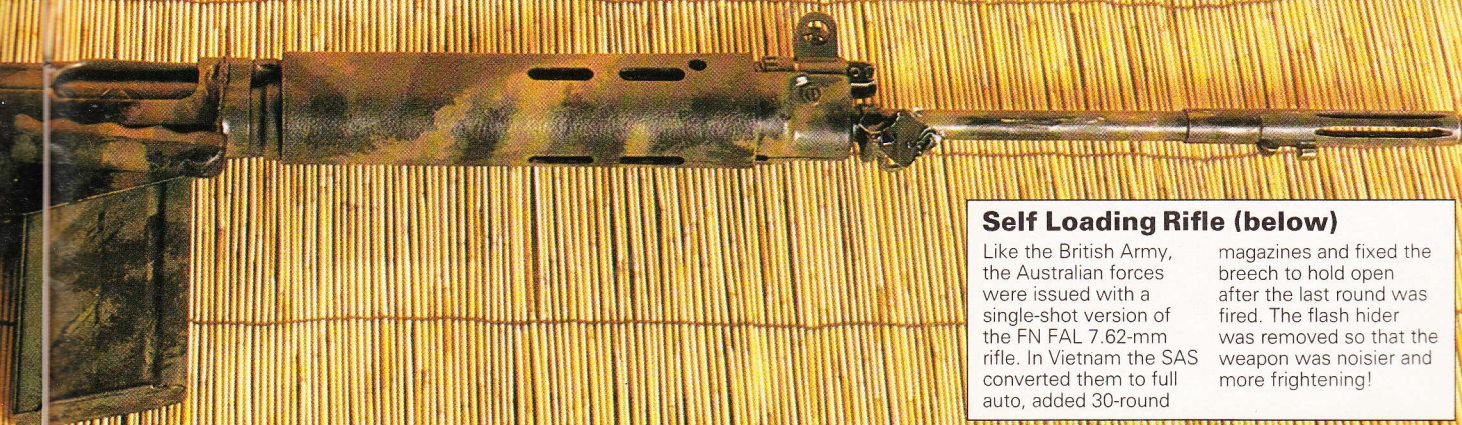
The Australian SAS employed a bewildering mixture of weapons in Vietnam; Australian issue equipment was soon supplemented by US Army weapons and experimental guns on trial in the combat zone.



M16 rifle (top)

The M16 served side by side with the SLR in Vietnam. The lighter ammunition meant troopers could carry 300 rounds each. The rifles

had to be utterly reliable – they remained cocked with a round up the spout for two weeks at a time with no cleaning.



Self Loading Rifle (below)

Like the British Army, the Australian forces were issued with a single-shot version of the FN FAL 7.62-mm rifle. In Vietnam the SAS converted them to full auto, added 30-round

magazines and fixed the breech to hold open after the last round was fired. The flash hider was removed so that the weapon was noisier and more frightening!



5.56-mm weapons were handier for jungle fighting, but the SAS valued the power of 7.62-mm weapons like the SLR and US M60 machine-gun. A 7.62-mm round can penetrate 17 inches of wood, and its ability to chew through enemy cover was invaluable.

Unless he was just moving around his own base area, the enemy usually wore webbing of some sort, a lot of it of US origin. Uniformity stopped there. His pack was more often a nylon or canvas bag with straps sewn on. His change of clothing, neatly folded, and his rations he would pack in plastic bags, and a sheet of polythene would serve as a ground sheet – a lot more convenient than an issue poncho, we found.

He liked to oil his hair, and use some sort of eucalyptus nasal inhalant. Asiatics don't have a particularly good sense of smell – that doesn't mean you

can get away with washing with soap or splashing yourself all over with Brut – and often suffer with some form of nasal congestion. They've learned not to talk, but not, apparently, not to hawk and spit – hardly a characteristic jungle sound!

Even a hurried body search almost always gave up personal letters – useful sources of intelligence, perhaps, if not at our level. Enemy soldiers who had been decorated or commended invariably kept certificates and even medals on their persons – one went so far as to patrol wearing a medal that proclaimed him a "Tank Destroyer, First Class".

Planning and preparing

The attention we paid to planning, preparation and security did more than anything to make our patrolling activity a success. Set-piece rehearsals have to be as much like the real thing as possible – and that means out in the jungle using live ammunition and explosives, not dry runs on the volleyball pitch. Ambushes, especially where the Claymore mines and other explosive charges are to be detonated electronically, need close attention. Before such an ambush is used operationally, it must be rehearsed live at least once.

We found that an effective patrol takes as long to plan and prepare as it does to execute. In an environment where few "outsiders" can be trusted, security in this long run-up period becomes an important consideration for every man in the unit – not just those involved in the operation. Commonwealth units made good use of local people as camp helpers and labourers in Malaya. Not so in Vietnam.

Australian living accommodation was a far cry from some of the US bases in Vietnam, where the vegetation was bulldozed away. The Australians left the trees intact and enjoyed the shade. No local Vietnamese were allowed to work on the base, which made it far more secure than US facilities.



SAS equipment, South Vietnam 1970

1 The **jungle camouflage suit** developed for Vietnam was light, strong and dried quickly. It was ideal for the wet season, when green ripstock looks almost black and shows up against the vegetation. This camo suit stays much the same colour even when soaking wet.

2 **Nomex mesh gloves** camouflaged your hands and protected them against sharp-edged vegetation, which otherwise inflicted cuts that soon turned septic.

3 The invaluable **Silva wrist compass** showed both miles and degrees and was worn by every trooper in a patrol.

4 The **lightweight ALICE pack** was a standard US army issue, a tough little pack able to take 35-40lb.

5 **7.62mm link** ammunition for the M60 machine-gunner was carried by all other members of a patrol, although the gunner still had to carry more weight than anyone else.

6 **5.56mm ammunition**, seen here in magazines and stripper clips, could be carried in enormous quantities – up to 300 rounds by troopers armed with the **M16 rifle**.

7 The **M26 fragmentation grenade** contains a fragmentation coil under a thin steel body and weighs 1lb.





The weapons and equipment of SAS troopers varied according to the time of their tour of duty, the nature of their mission and, above all, personal preference. This shows one alternative to the kit shown on page 41.

1 Vietnam leaf pattern camouflage suits were actually designed in the late 1940s but were not introduced until 1968, when some Special Forces units were issued with them.

2 The very robust **Australian Vietnam issue pack** had a solid board frame, quick

release tabs on the shoulder and plenty of webbing clips. This one has been sprayed black to break up the shape.

3 The **SAS ammo pouches** could be worn lower than conventional ones, which made them easier to get at while lying down. They take 4x20 round magazines for the **SLR** seen here.

4 The **Chinese stick grenade** was a favourite weapon with the Main Force Viet Cong and the North Vietnamese regulars that the SAS sometimes encountered in Phuoc Toy province.

Unlike US units, we found the presence of even one unknown quantity inside our area was just too much of a security risk.

Helicopters

The use of helicopters to support patrols raises as many questions as it answers. They give you far greater mobility and allow casualty evacuation and extraction under fire to stand a real chance of success, but their very presence reveals yours.

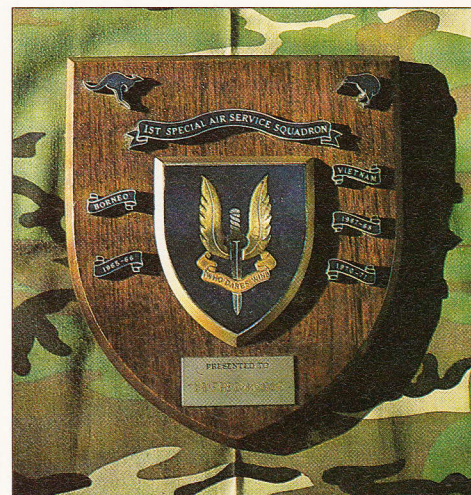
In Borneo all the helicopter landing zones had to be man-made. The same wasn't true in all of Vietnam. In some parts of the country, natural LZs were plentiful, and effective deception techniques allowed us to make use of them.

A helicopter can be heard a long way off. But hearing a helicopter and making an accurate assessment of its

position are two very different things: so long as the aircraft is out of sight, it's extremely difficult to estimate either range or direction, and thus, in an area where helicopter traffic is commonplace, it is still possible to insert a patrol covertly.

A high degree of co-operation between the helicopter crew and the patrol leader is essential, and in this case personal contact and an established working relationship – aircrew and SAS regularly working together as a unit – made all the difference.

The air force is made up of more aircraft than are necessary to carry the patrol; some helicopters are used for immediate reconnaissance of the area, some to provide diversions. They leave the base area at spaced intervals, and meet at an RV close to the operational area, having made a long low-level tactical approach using indirect routes.



The Australian SAS was formed in 1957 as a company of the Royal Australian Regiment. Expanded to regimental strength during 1962-4, 1 squadron was deployed to Brunei in 1965. The three squadrons served in Vietnam in rotation from 1966-72.

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U.S. FORCES M.65 PATTERN OLIVE GREEN COMBAT JACKETS: Exact as original issue, complete with N.A.T.O. military specification contract issue label, stock No. 8415-00-782-2933, detachable button in full cold weather lining, concealed hood in collar, draw cord waist and hem, heavy duty zip with press stud closure over flap, velcro adjustable cuffs, 4 front pockets with press stud closure flaps, epaulettes. Sizes: 36"-38", 38"-40", 40"-42", 42"-44", 44"-46" **£39.99**

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AS ABOVE: Complete with Queens Crown Parachute Regiment beret badge **£9.99**

BRITISH FORCES PATTERN ROYAL MARINE COMMANDO GREEN BERETS: Cotton sweatband, sizes: 7", 7 1/2", 7 3/4", 7 1/2" **£6.99**

AS ABOVE: Complete with Queens Crown Royal Marines beret badge **£9.99**

BRITISH FORCES PATTERN BLACK REGIMENTAL BERETS: leather sweatband, sizes: 6 1/2", 7", 7 1/2", 7 3/4" **£6.99**

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U.S. FORCES URBAN CAMOUFLAGE PATTERN BASEBALL UNIT CAPS: Adjustable fitting **£6.99**

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Unlike the endless forest of Borneo, the Vietnamese jungle had plenty of natural clearings. Moving up or down from a hovering helicopter was slower and more vulnerable to enemy action, although some 'hot extractions' were managed with a whole patrol dangling under a Huey!



The aircraft's actual position on the LZ and the direction it's facing will be worked out by the patrol commander and the pilot just before landing. We often took Polaroid pictures on earlier recon flights and used these to help us decide.

Helicopters are very attractive vehicles. They allow a patrol to get into place fast, in something approaching comfort. But, for safety and security, walking in on your own two feet gives you the best chance of all.

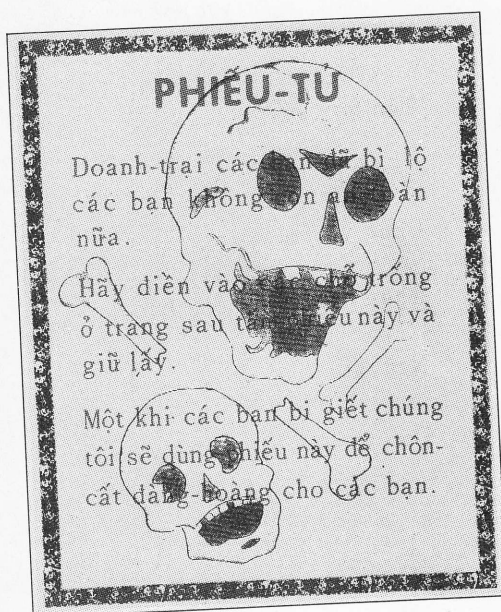
Firepower

The "one shot, one kill" concept – second nature to the SAS – got literally shot to pieces in Vietnam. Some American units, instead of sending out clearing patrols, would shoot up the entire perimeter for two minutes. They called it "reconnaissance by fire".

While certainly not advocating such extremes, our experience in Vietnam proved the effectiveness of using maximum available firepower, some of it neither aimed nor accurate, immediately contact is initiated.

If we initiated the contact, there was a very good chance that the first rounds fired, at least, would achieve a kill. But of course there was no way to know that the one or two enemy we had seen were all that was out there. They could be – and often were – followed closely by a much larger force, and then the deployment of every available weapon served to keep their heads down and confuse them about our strength.

Drilling every man to fire his weapon, whether it was directly effective or not, had another useful effect – it broke the "spell" that occurs momentarily on contact, motivating the members of the patrol and keeping their morale up.



This SAS calling card left in enemy camps or on enemy dead claimed that the SAS knew all about the local VC and asked them to write their personal details on the back so that they could be buried properly and relatives informed.

Only at the last second do the aircraft carrying the patrol divert to the real LZ.

Contact with the enemy on the LZ is one of the set-piece drills that a patrol practises before setting out. The rule-of-thumb is "one out, all out" – if the insertion comes under fire with some members of the patrol still inside the aircraft, the men still emplaned must get out before they can give effective support. The pilot's nerve usually dictates the situation, though – another good reason for having a close working relationship with him.

SAS personal weapons



SAS modified M60 GPMG

The M60 was a robust weapon. Its firepower was highly valued, but it was rather unwieldy for a long patrol. The SAS shortened it by swapping a rubber pad for the butt and fitted a pistol grip instead of the proper handguard.



Stoner weapons system

Used by the US Navy SEALs, several were acquired by the SAS but it was not sufficiently robust to survive for weeks in the field with little maintenance. This one uses elements from the LMG and rifle models and has a 150-round magazine.

Ammunition load

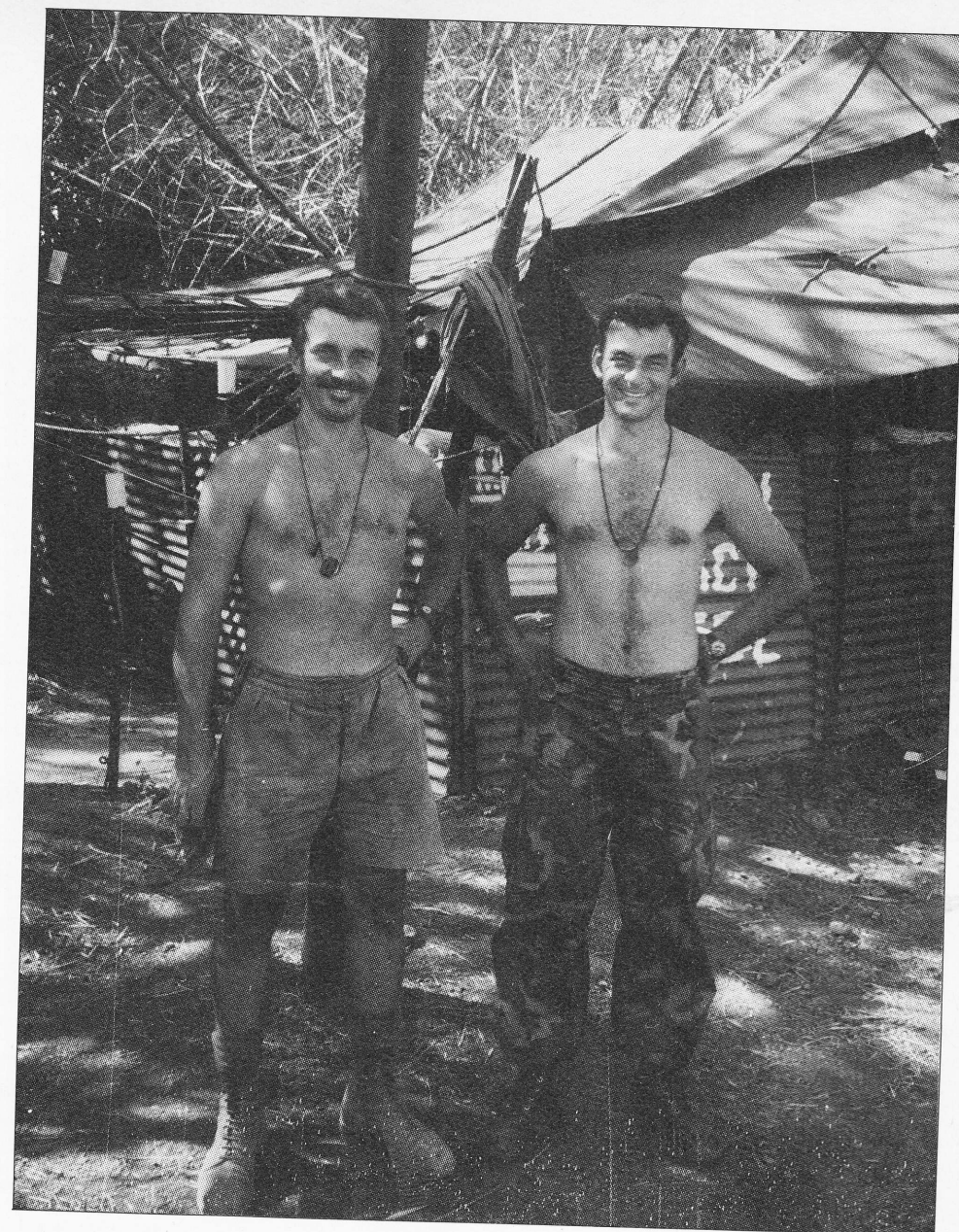
This policy of expending ammunition heavily on contact meant that every man had to carry more than a normal load. Troopers carrying SLRs carried 200 rounds; those equipped with M16s 300. All our rifle ammunition was carried in magazines. SLRs were converted to fire on full auto. GPMG ammunition was distributed among all the members of the patrol. It deteriorated rapidly in the tropical conditions, so was treated with a water-displacing spray (we used WD-40) and carried in plastic sleeves. Our issue Lilo mattresses proved ideal – each segment held a 200-round belt.

Even with loads like this, we sometimes found it necessary to request a resupply. The replenishment stocks would come in by helicopter, lowered down through the trees if necessary. We always pre-loaded ammunition ourselves, in case we needed a resupply, and left it, clearly labelled, at base.

Fighting alongside US troops, we could always draw on their armoury too. The weapons we found most useful were the M203 40-mm grenade launcher, the M72 LAW, which is excellent against bunkers, and the Stoner 5.56-mm weapons system. The belt-fed version of this weapon provided us with a light shoulder-controlled machine-gun capable of delivering devastating firepower. It was most welcome despite needing very careful maintenance.

Canned heat

Simplest and most effective of all was the Claymore mine. As one of my Australian troopers said, "It's the greatest thing since canned beer." Hard to think of higher praise! Conceived for perimeter defence, it proved excellent as an ambush weapon too. Each member of the patrol would carry two. Properly placed, this meant that a five-man patrol could cover a killing area 50 to 60 metres wide, even allowing for



interlocking arcs of fire.

Having the firepower is one thing; applying it is another. Out in the jungle, often in confined spaces, getting your weapon to bear and keeping it there becomes the most important consideration. Once again, there's no substitute for rehearsal. We tried blank rounds – they don't produce the right atmosphere. Training with live rounds

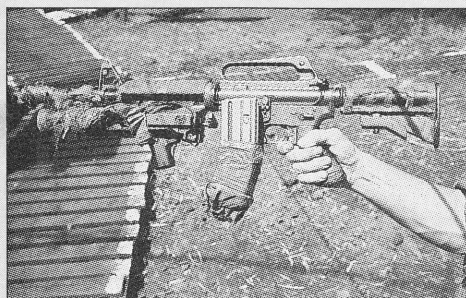
The 'Ocean Beach Hotel' between patrols. The SAS maintained rigorous security: normal daily activity continued even for a patrol about to leave. Information was disseminated on a 'need to know' basis and operational orders were destroyed before departure.

in a realistic environment is the only way to sort out the finer points of weapons handling drills and be safe but effective at the same time.



M203 grenade launcher

A very useful boost to the firepower of a small patrol, the M203 was usually carried with the canister round loaded so that its awesome shotgun effect could be used against a VC ambush. It had flip-up sights of its own, but most troopers learned to aim using the M16 sights.



Colt Commando CAR-15

Shown here with the M203's experimental predecessor, the XM48, the CAR-15 was very popular. Light and short, it was the most convenient rifle for troopers carrying heavy kit on long-range patrols. Note the camouflage and double-stacked 30-round magazines.



M16 with single-point sight

Ideal for snap shooting at fleeting targets, the single-point sight proved fine for engagements at up to 200 m and was invaluable in low light conditions when iron sights would not produce a clear picture. The only drawback was that about one soldier in six lacked the visual accommodation to use it.



On the ground

One of the first differences we found between operating in Borneo and in Vietnam was the amount of ground we could expect to cover in the course of a day. We'd been used to moves of anything up to 10km a day, and looking back on it it seems obvious that you can't really control the ground if you pass through it that fast. If you concentrate on moving quietly and searching thoroughly, there's no way a five-man patrol can cover more than 3,000 metres in a day. Admittedly there was a bigger enemy presence in Vietnam, and his fieldcraft was better.

This reduced distance has no bearing on the fitness of the men concerned. What we missed in terms of putting one foot in front of another, we made up for in the loads we carried. As well as the heavy ammunition load, lots of grenades and at least two Claymores per man, we'd have to carry as much as 40lb of water each, in the dry season.

Moving for an hour and then resting ten minutes is acceptable on a route march but dangerous in the field. It encourages a 'thumb-in-the-bum' attitude and concentration – the essence of patrolling – is quickly lost. We found it better to move in 30-minute cycles, stopping to listen frequently and then resting for 10. When it came to laying up, we modified the Malaya/Borneo drill considerably. The original takes anything up to three hours, if you do it by the book. We got ours down to a little over half an hour without cutting any essential corners.

In thick jungle, your ears are more use than your eyes, so the golden rule

40-mm grenades

On the left are a selection of smoke rounds; second from the right is the canister round. The grey-topped one is rubber-tipped HE: fired short of the target, it bounced into the air and detonated. A good gunner with an M203 could fire rapidly enough to keep three rounds in the air.



PRC-64 HF radio (left)

Issued to US long-range patrols and used by the SAS, it had an integral Morse key and was sealed to survive being dropped in water. Being High Frequency it had long range, but ionospheric interference impaired performance at night.

URC-68 UHF/VHF radio

This saved a patrol from having to carry two radios. The SAS could communicate with other ground troops on the VHF net, while the UHF feature allowed them to talk to aircraft. Earlier, SAS patrols carried the UHF URC-10, the US equivalent of the SABER beacon.



of patrol harbours is silence. A man sitting still in dense jungle is almost impossible to surprise. After packs have been set down and clearing "patrols" (one man, as likely as not), have gone out and returned, there should be no movement and no noise in the patrol harbour.

If you're going to overnight in that position, wait until just before dark to prepare sleeping areas. Every other man moves inward from the circular perimeter and prepares a sleeping position big enough for two. Use secateurs to remove a bare minimum of undergrowth. As night falls, the others withdraw to their sleeping positions. If bashas are to be constructed, now is the time for it. Better not, though.

There's to be no stripping off. One man at a time can change a shirt if it's absolutely necessary, but that's about all. No-one takes his boots off. All weapons and equipment must be right to hand and, if necessary, everyone must be able to pack up and move off in the dark without leaving anything behind.

Sentry duties

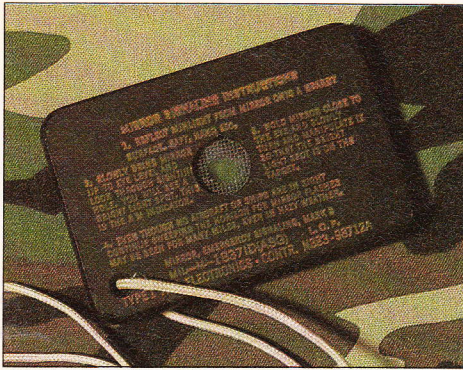
I don't think it's necessary to post a sentry in patrols of fewer than 10 men. Above that number, just one listening man is sufficient. He can do that perfectly adequately from his sleeping position, then wake the man next to him when it comes time for relief. They should be close enough together so that all he has to do is reach over. This eliminates the need to move about in the dark.

Sleeping gear should be repacked before daylight comes, and the patrol spread out again to the perimeter it occupied before dark. I don't believe in "standing-to" at daybreak; any stand-to has to be followed by a stand-down – and that encourages everyone to relax, even if only subconsciously.

There are two schools of thought about how to start the day – move off straight away, and then stop for a breakfast break, or brew up first and then move off. I favour the latter. If you've observed all the correct harbouring procedures, you should be quite confident of having the area to yourself; the Claymores are still out from the night before, and you know that there are no tracks in the immediate vicinity. Should it all go wrong, and a contact does occur, I think you've got a better chance of coming through it in the night harbour position than you have in a hastily prepared one.

Effective camouflage

Relying on your hearing, not sight, to detect an incoming enemy presupposes one thing – that he's going to be difficult to spot. We were, too. Some people thought our efforts to achieve



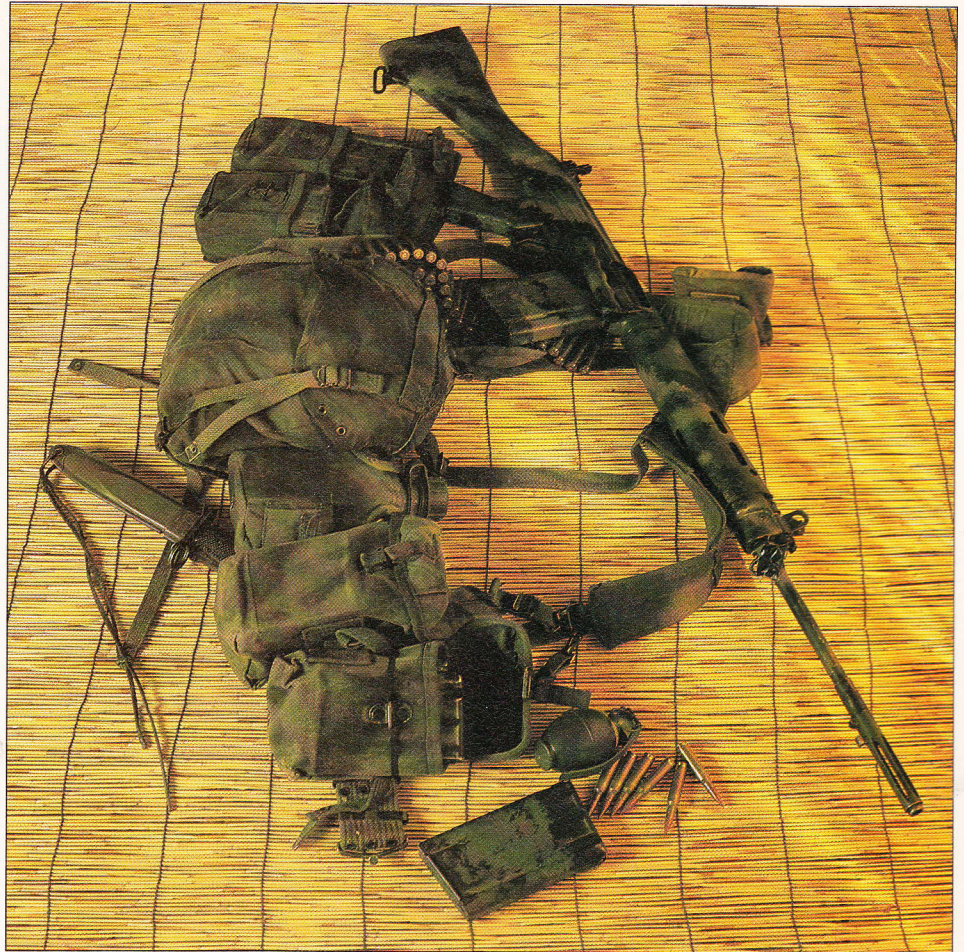
Mk 3 signal mirror

This item of survival equipment provided a light and convenient means of signalling. You use the sighting hole in the middle to direct the reflected sun onto your target.

good camouflage excessive, even gimmicky. Nothing could be further from the truth.

Green and brown cam cream that incorporates an insect repellent was essential. Issue OG [olive green] was replaced with two types of lightweight camouflage suit, one for the wet season and one for the dry. We all wore green mesh-backed gloves with rubberised palms and index fingers, and used brown and green spray paint to camouflage individual weapons and equipment.

Map coverage in Vietnam was



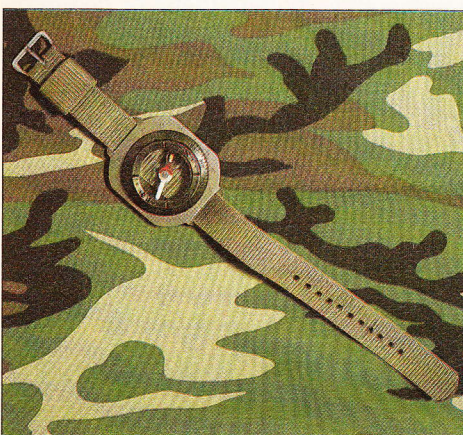
Australian belt order

On an Australian issue yoke, the belt order consists of (from the front): US M14 pouch, Australian issue ammo pouch with plastic insert to stop it folding up, Australian issue 'bum pack' and a pair of SAS ammo pouches. The 'bum roll' could have a poncho attached to the bottom. Note the US M6 fighting knife, M26 grenade and 7.62-mm link.



excellent and up to date – a far cry from the situation we'd had to cope with in Borneo. We had 'Picto Maps', too – aerial photographs, properly scaled and marked with contour lines and conventional signs. Every man in the unit had a Silva wrist compass – bought out of his own money if he couldn't get one on issue. Two men in the patrol would use digital counters – one for tens of paces, the other for hundreds. None of this equipment made jungle navigation easy, but it meant we were as accurate as possible.

It's hard to gauge the real effectiveness of a unit as small as the Australian SAS in a conflict that employed more than three million Americans – and countless Vietnamese of one persuasion or another. The only indication is provided by a sort of profit-and-loss account, and this is it: in five years' service in Vietnam, the Australian and New Zealand Special Air Service lost one man killed in action, and 27 wounded. They won one Victoria Cross and four Distinguished Conduct Medals. They left behind more than 500 enemy KIA.



Silva wrist compass (left)

This supremely useful piece of kit is no longer manufactured: a real pity since it was ideal for infantry patrolling. Graduated in degrees as well as miles (remember, the Air Force still uses degrees) it was a much more sensible option than carrying a compass round your neck or attached to your map.

Claymore mine (above)

Described by one Australian trooper as 'the greatest thing since canned beer', the Claymore was an outstanding success. When used to make devastating 'mechanical ambushes' to defend a patrol harbour, their firepower was overwhelming. They were even used (with a short fuse) to discourage Viet Cong pursuers when an SAS patrol broke contact.

Weatherproof Ja



Radar's hydro-ram system is completely waterproof even when given a very thorough soaking by abseiling down a waterfall. However, you should only wear it when it is raining as sweat can build up when you are on the move: the fabric is not as breathable as Gore-Tex.

Tabbing over another bleak Welsh hillside with your eyes fixed on the boots of the bloke in front, the rain strikes your face almost horizontally. This is not a good time to discover that the waterproof jacket you bought last week doesn't work as advertised. It may turn out to have a leak along the shoulder-seam that leaves you soaked. It may fail to ventilate properly and leave you in your own private sweat-lodge. Either way, you are now wet through and very

uncomfortable. This discomfort can be far more serious if you're trogging over Brecon in winter and promptly go down with hypothermia.

Your correct choice of weatherproof jacket depends on several factors. We field-tested a variety of weatherproofs in tough conditions on the Brecon Beacons and across North Yorkshire. We found some good buys, some not-so-good buys and some disasters just waiting to happen.

Modern technology has produced a number of excellent waterproof fabrics: PVC, polyurethane or neoprene proofed nylon are the most commonly used. All are completely impermeable, and a jacket made from any of these will keep out any amount of rain so long as the seams are waterproofed. But there's a problem: if you sweat, the moisture can't get out and condenses on the inside of your jacket. You can end up quite wet, which is always uncomfortable and can even chill you to the point of hypothermia in cold and windy conditions.

From a military point of view these nylon waterproofs have a major disadvantage: they tend to produce a rustling noise when you move. In a tactical situation that noise may be unaccept-

Choosing a waterproof: your priorities

Whether or not a jacket is suitable for you depends on your personal priorities. We looked at the jackets here under the following headings:

Price

For everyone except the cheque-book outdoorsman, cost-effectiveness is often the most important consideration.

Durability

If you have to scramble through hedges in South Armagh for a living you will need something a little tougher than the average hill walker's kit.

Breathability

Not a problem if you simply have to stand in the rain. But serious tabbing or other hard work will make you sweat: if it doesn't breathe, you'll be soaked just the same.

Waterproofing

Does it actually keep the rain out?

Windproofing

In some jackets you can really find out what they mean by 'wind-chill factor'. In others it becomes a thing of the past.

Flammability

Waterproof jackets and you're worried about fire? Not as silly as it may sound: oil-proofed jackets can burn easily, which has led to them being banned from helicopters in Northern Ireland.

Pockets

How large, how plentiful and how durable are they? Are they waterproof too, or do your sandwiches get soggy?

Noise

Does the jacket rustle and advertise your presence to the enemy?

able, so the waterproofs have to stay packed and you get soaked.

Dealing with condensation

If you get a sweat on while wearing an impermeable waterproof, condensation will form on the proofed inner face of the jacket. In very cold weather it will occur within your clothing layers. The key to avoiding, or at least minimising, condensation is ventilation. Loosen your clothing as your activity level increases, and do so before you get hot and uncomfortable. Remove your headgear and unzip your jacket if possible. In our experience it is better to start a march slightly cold and warm up as you go than to start off comfortable and have to stop later on to change or – worse – suffer in silence as you overheat.

It is very important to wear the right clothing under your waterproofs. Meraklon (polypropylene) underwear allows perspiration to pass through to your outer layers. Fibre pile also works in this way, and this combination is far more comfortable than the all-too-common choice of cotton T-shirt, hairy shirt and jersey!

Breathable fabrics

The new breathable fabrics allow the moisture produced by your body to pass through them while stopping the rain coming the other way. However, ventila-

Survival Aids SAS smock

Advertised as windproof and showerproof, this is made of 100% cotton gaberdine material and is obviously aimed at the serious user. A copy of the MoD issue SAS smock, it is short with inner shoulder panels for protection. It has the usual features: two-way heavyweight zip (with handy tapes on the pullers), and draw cords at hood, waist and hem plus four spacious pockets on the body. These are taped and

covered by a storm flap fastened by large buttons. There is a small sleeve pocket on the upper right sleeve, and the elbows are reinforced with a double panel. The external pockets are large enough to store gloves, hat, torch etc, but even a short rain shower will get them wet inside. The sleeves are of a baggy batwing type to provide the minimum restriction on your movement.

Durability: 9 Very tough

Breathability: 6 After serious work the interior became wet

Waterproofing: 3 This jacket does not claim to be waterproof, and under heavy rain it certainly was not

Windproofing: 8 On a mountain with a stiff wind this did very well

Noise: 9 Comfortable,

noiseless smock, ideal in a tactical situation

Washing: Hand/ machine wash. Rinse thoroughly

Price: £89 Good value

Summary: Practical, hard wearing, very comfortable and windproof. But in continuous drizzle it got wet through and became very heavy. It took a long time to dry



The windproof smock is an excellent load-carrier in addition to keeping out some of the elements.

Survival Aids Lionheart Jacket

Made of MoD spec Taslan Gore-Tex fabric, which is fully waterproof and breathable, this features a wire-and-drawcord hood, two-way heavyweight zip covered by a flap with press studs at top and bottom. There are drawcords at the hem and waist, conveniently on the outside. Extra features go towards justifying the cost: an inside zipped pocket and two spacious

pockets on the lower body, which are zipped and covered by a storm flap. These proved completely waterproof and have ample space in them.

Durability: 7 We tested it in rough country and although it survived intact, it felt delicate and we were worried that it would tear.

Breathability: 9 Excellent even during a serious tab

Waterproofing: 10 We could find no criticism and it dried quickly too

Windproofing: 9 Again, no faults

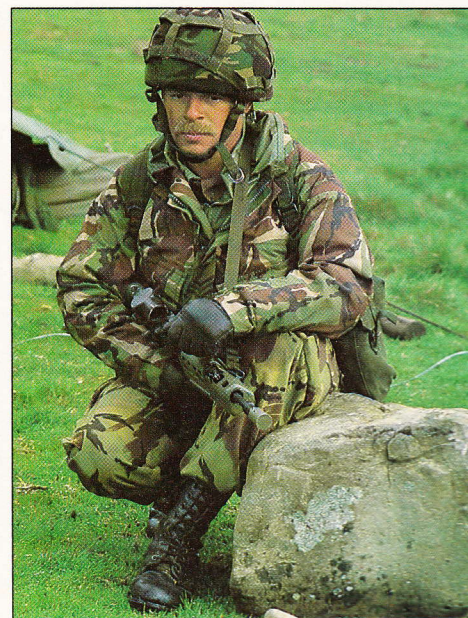
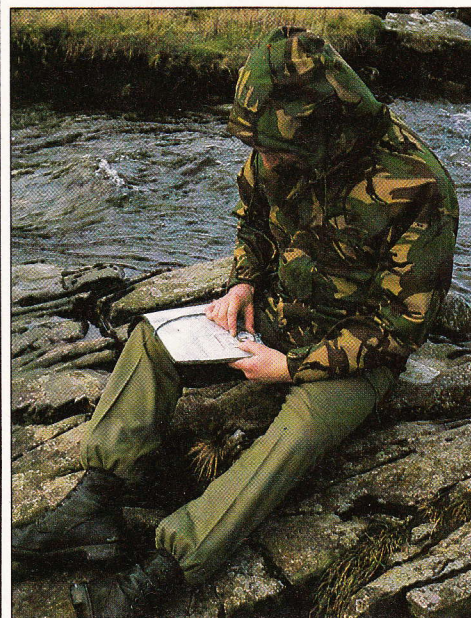
Noise: 2 It rustled too much for tactical use.

Washing: Machine-wash with detergent in cold water. Drip or tumble dry

Price: £89 –

Expensive, but worth it for hillwalkers, trekkers, survivalists or mountaineers

Summary: It's an excellent jacket combining all the qualities needed for real outdoor use, summer or winter, although not perhaps as comfortable as the SAS smock in Ventile



The Lionheart is perhaps the best military waterproof you can buy. If you are going on patrol, wear the jacket underneath the smock to protect it from damage when crawling and moving through thick cover, and also to cut out the rustling noise of movement.



British Army training areas always provide the ultimate challenge to a soldier's equipment and personal administration skills, and Otterburn is arguably the worst. This is not the time to find out that your kit is not up to scratch.

tion remains important: without it, you will still suffer from condensation during physical exertion. If you're wearing a rucksack, you will always get a wet back whatever fabric your jacket is made from. But with a breathable outer layer you have the advantage that when your activity level drops, any condensation formed will pass to the outside and you don't get that cold, clammy feeling associated with impermeable waterproofs worn for long periods.

How good are they?

The breathability of jackets is usually measured in a laboratory using a test which establishes the MVTR (Moisture

Vapour Transmission Rate). The usual method is to clamp the fabric over a container holding a measured quantity of water. This is measured after 24 hours to see how much moisture vapour has passed through the fabric. The test can be made more realistic by heating the water to blood temperature and fanning cold air over the outer surface, which creates the ideal conditions for condensation to form.

MVTR is expressed in grams or millilitres per square metre per 24 hours, abbreviated to gms/sq m/24 hours. The majority of breathable fabrics allow 2000-4000 grams (2-4 litres) of moisture vapour to pass during a lab test. The best can achieve 8000gms/sq m/24 hours. To put this in perspective, a typical waterproof coat with hood is made of about 4 sq metres of fabric, so the most efficient jacket will allow 32 litres through in 24 hours, or 1.3 litres per hour.

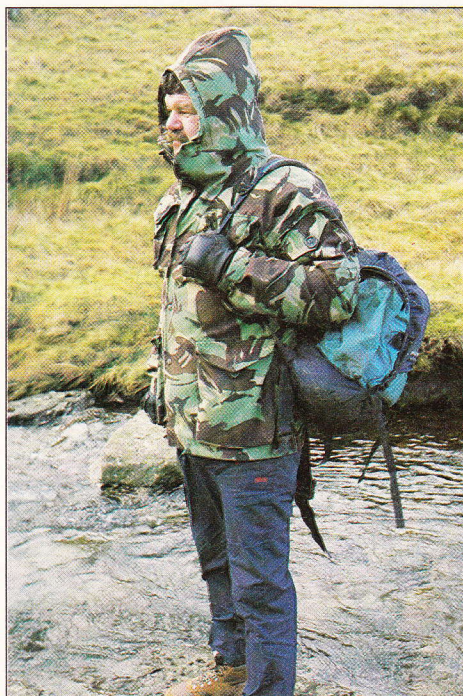
ARKTIS Cotton Modal Jacket

This is a prototype of a waterproof combat jacket targeted at the professional soldier. It is lined with Pertex to minimise condensation problems and is made from cotton/modal, a tried and tested fabric. The draw cord hood is also lined with Pertex, and proved snug and warm. The jacket has a two-way heavyweight

zip covered by a flap that fastens with Velcro and press studs. It has Velcro cuffs and a drawcord to the hem but, surprisingly, not one at the waist. Four large pockets, taped and covered by a storm flap, provide ample space but did not prove watertight during a day of filthy weather on the Brecon Beacons.

Durability: 9 It coped well with hedges, an assault course and did not snag on barbed wire or while crashing through brambles.
Breathability: 8 A five mile tab showed this to breathe very well.
Waterproofing: 9 It dried quickly, too; shame about the pockets.
Windproofing: 8 We gave this a rather unfair test: 25 mph on a motorbike, up a mountain. Very windproof, but it's too

short so you get a cold bum.
Noise factor: 9
Washing: Machine/hand wash in cool water, any powder, rinse well.
Price: £92, which compares favourably with similar, quality jackets.
Summary: The prototype we reviewed lacked many key features and was too short, but the production model is longer and much better equipped. An excellent military jacket.



The ARKTIS smock, now in production, has corrected all the faults of the prototype jacket, which was simply knocked up to test the fabric.

Berghaus Scimitar

The main feature of this jacket is its soft feel and drape. The outer shell is made of a soft but strong microfibre called Lotus which is windproof and offers good water resistance. Total waterproofing is achieved using a fully taped drop Gore-Tex 'S' liner. Because this isn't bonded to the outer shell, the air gap created makes for excellent breathability (better than three layer Gore-Tex). The use of a drop liner also eliminates the need

to seal the outer, which adds to its softer feel. Unfortunately this means that in very wet conditions the outer becomes saturated, and your pockets too. A second internal zip allows you to zip in a 'Polarplus' jacket in very cold conditions. On both hip pockets, vertical zips on the bellows allow you to pass a rucksack waist belt through the handwarmers without losing use of the pockets themselves.

Durability: 6 Not intended for very hard use.

Breathability: 10 The drop liner system is excellent.

Waterproofing: 9 You stay dry, but the outer layer will absorb water.

Windproofing: 9 The outer layer is completely windproof.

Noise factor: 6 It's noisy, but worn under a windproof SAS smock it would be fine for military use.

Washing: Wash in warm water.

Price: £134 Matching overtrousers are available at £59.95.

Summary: Ideal for ramblers, hillwalkers and skiers who will appreciate its comfortable feel and ability to pack up very small. Climbers and anyone looking for a very rugged jacket would do better to go for a stronger three-layer Gore-Tex jacket.

Waxed Jackets

Widely used by farmers and outdoorsmen, there are hundreds of styles available from many different manufacturers. They fall into three main types: unlined water/thorn proof jackets designed to go over a coat; ones with liner and insulation layer which are too warm to be worn over a combat jacket; and jackets with

detachable insulating layers. Prices vary, but it's worth getting a good one with a decent length and double zip which allows you to open it from the bottom to really stride out. Worn under a windproof smock they are an excellent way to stay dry on exercise, although they're not breathable and burn easily.

Durability: 9 Offers good protection against thorn bushes and will soldier on and on if reproofed from time to time.

Breathability: 1 Not quite as bad as PVC jackets but still very poor.

Waterproofing: 9 Reproof regularly, concentrating on elbows, cuffs and where your Bergen straps rub.

Windproofing: 9 Good, but they get stiff at low temperatures and can act like a bellows as you walk along, making you very cold unless they fit tightly.

Noise factor: 3 Noisy and not camouflaged; only for wear under a smock.

Washing: Any cleaning agent destroys the wax waterproofing, so you can only wash it down with cold water, but

they're not meant to look clean and smart. Not for people who merely want protection from the great outdoors between winebars.
Price: £30-£90 From experience we've found that the more expensive ones last longer than two cheap ones.
Summary: If you can't afford Gore-Tex etc the lightweight wax jacket is a good alternative for outdoor use and army exercises, but they tend to be heavier than modern alternatives, which can be a problem. Not breathable.

Wax jackets are excellent for the job of staying dry if you look after them. For military use, remember that they burn easily and are heavy.

Army Issue nylon coated PVC waterproofs

This heavyweight nylon jacket is currently being issued (with matching overtrousers) to selected army units. It is the MoD's first real attempt to equip soldiers with waterproof kit, the official attitude until recently being that if you wanted to stay warm and dry, why did you join the army? This is non-breathable but completely water- and windproof. The overtrousers can just squeeze over Boots Combat High. It's tough,

although crawling through concrete sewers during FIBUA wears away the waterproof backing from the elbows and knees. Too noisy for tactical use, it is ideal for standing in a muddy trench for days on end and, unlike Gore-Tex or Hydro-Ram, being covered in mud does not affect its waterproofing. The only serious defect is the zip, which is too small and clogs with dirt, and locating it with cold or gloved hands is all but impossible.

Durability: 7 Great jacket; shame about the zip

Breathability: 0 A gentle tap will leave you soaked

Waterproofing: 9 Good, but the cuff enclosure is ineffective

Windproofing: 9 Generous hood and neck flap

Noise factor: 3 Not for patrolling in

Washing: Machine washing peels off the waterproof lining. Just rinse in cold water and

wipe it down

Price: £30-£50 depending on availability and your bargaining power

Summary: A worthwhile piece of kit as long as you remember the limitations of non-breathable jackets. Far tougher than civilian designs, but we wouldn't buy it because of the zip, the designer of which will walk with a limp if we ever find him.



The issue waterproofs will keep you dry in fairly limited circumstances. As long as you know the limitations, you will not run into problems.



The Berghaus Scimitar, worn underneath the smock, is an excellent solution to the 'how to stay dry on exercise' problem.



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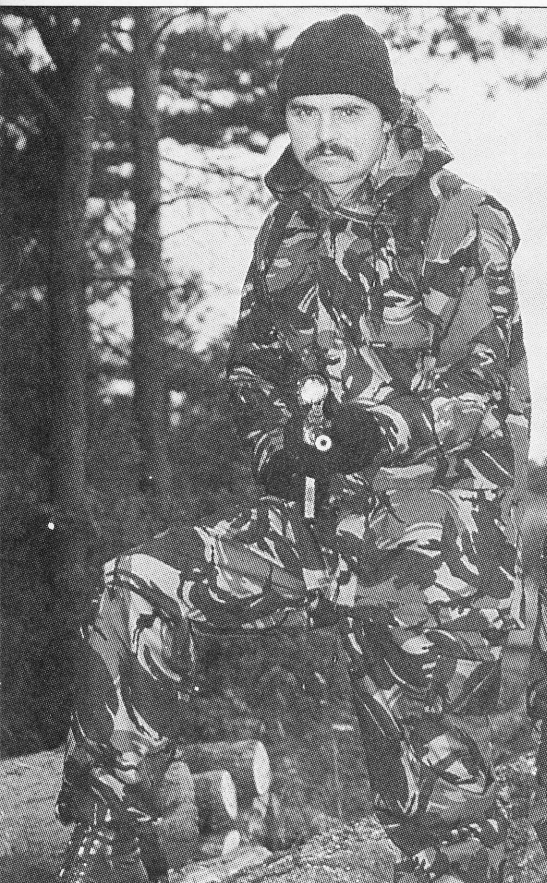
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Weatherproof Jackets /

Radar 'Classic' original Hydro-Ram jacket



If your wallet doesn't stretch to Gore-Tex, the best alternative breathable fabric is Hydro-Ram. Tested thoroughly on several speed marches over the Brecon Beacons and in Sennybridge issue weather, it performed very well. It is made from NATO issue poly cotton DPM material and treated with a breathable coating on the inside. The camouflage is NATO

pattern, so there's no risk of being mistaken for a Polish paratrooper and shot by mistake, which can be a problem with some jackets. It's not as breathable as Gore-Tex but if you strip down sensibly before a tab you won't overheat. Good zip, four large pockets and knitted cuffs are all welcome. Radar make them to size rather than just small, medium or large.

Durability: 7 Tougher than the PVC designs, but don't pierce the inner layer or it will leak

Breathability: 5 Can't shift the same volume of condensation as Gore-Tex

Waterproofing: 9 The outer layer absorbs water, so it gains weight

Windproofing: 8 Good but the zip flap

This is a well-put-together jacket that is not going to break the bank, and it does 'breathe'. It's suitable for all but the most protracted exercises and operations.

could do with an extra inch

Noise factor: 7 Could be worn on patrol

Washing: Mud stops it breathing properly. Don't machine-wash; use warm water and a little detergent

Price: £34.95 plus £2.00 postage and packing

Summary: A good alternative to the issue jacket, and a hell of a lot cheaper than Gore-Tex. Rather tougher as well, although not as breathable. Radar's mail order is reliable too but make sure you tell them your size, otherwise they ring up and ask!

Berghaus Trango Extrem



The top model in Berghaus' Gore-Tex shell clothing range, this is aimed at the serious user. It has a wired visor, two-way heavyweight zip covered by a flap that Velcros down, plus drawcords on the hood, waist and hem. It also boasts a zipped map pocket and four capacious pockets on the body protected by a storm flap but without taped seams – don't put delicate items in them; they get wet. The zips can easily be operated in the cold or while wearing mittens as they have an attached puller.

A beard guard is provided to prevent that painful experience of catching a hair in the main zip. Designed with alpine climbing in mind, it has strata panels in areas prone to wear. Because the Gore-Tex is in three layers, the inside stays dry even if the outer surface ceases to breathe properly when it's covered in mud. It's great for climbing in, as a special under-arm gusset prevents it from riding up. A large hood with unique 'volume adjuster' enables you to wear various headgear under it.

Durability: 9 The toughest Gore-Tex you can buy

Breathability: 10 Even during heavy work like ice climbing, it breathes well

Waterproofing: 8

Totally waterproof except for the pockets

Windproofing: 10 Unbeatable

Noise: Not applicable: this is not a military jacket

Washing: Hand wash in warm water

Price: £175

Summary: This is for the ski-mountaineer, alpinist or serious trekker. Designed with no compromises, its useful and well-thought out features instil immediate confidence



Unfortunately, you cannot rely on manufacturers' figures for a fair comparison of breathability. Not all of them use exactly the same method, and some tests suit some fabrics better than others. No prizes for guessing how certain companies pick which test result to publish. However, a new British Standard test is being introduced later this year which will give a genuine comparison of breathability.

The laboratory tests are only a comparison of relative performance under controlled conditions. Actual performance in the field depends on many factors: the condition of the jacket, the temperature, wind speed, relative humidity, and your level of activity and metabolic rate. No scientific test can adequately reproduce all these factors, so you can't be sure about your jacket until you're half way up Pen-y-fan. However, the US Army (who else?) has developed a robot that 'breathes' and has a skin that 'sweats', so a controlled lab test may soon be able to give an accurate indication of actual performance.

The range of fabrics

Ventile/Grenfell cloth

These are traditional cotton fabrics that keep out the rain by a combination of close weave cotton fibres that swell when wet, and a chemical proofing. They work very well, but ideally you should wear a double texture to guarantee waterproofing, which tends to increase the weight. They are also very expensive. **MVTR: 6-8000 gms/sq m/24 hrs.**

Gore-Tex

The first of the modern breathable fabrics, and still the best. Gore-Tex uses a PTFE membrane as a laminate between other layers of fabric. Truly microporous and highly breathable. **Typical MVTR: 6-8000.** Very expensive but guaranteed.

This is the jacket for serious adventure training: it is probably the best civilian jacket you can buy. The material is much heavier than that of the Scimitar and is a little too bulky to be worn underneath a smock.

Regatta Stormbreak

This came out No. 1 best buy in *Which* magazine last year, but all the jackets in their test were in the lower price bracket. As with all non-breathable fabrics, condensation is very evident and the rear vent

does very little to combat this. The front zip has a cover behind to prevent water entering, which would be better in front, but this would demand Velcro or stud fastenings and thus push up the price.

Durability: 3 It will rip easily, and if you crawl you'll damage the unprotected zip

Breathability: 0 Condensation builds up quickly once you start to move

Waterproofing: 8 In a real downpour water comes through the zip and the cuffs, but the material itself is waterproof

Windproofing: 8 The unprotected zip weakens the windproofing

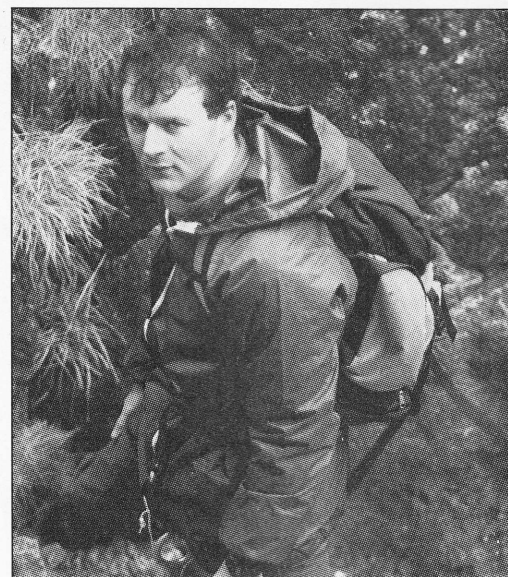
Noise factor: 3 Too noisy for tactical use

unless worn underneath the combat jacket

Washing: If you forget to use lukewarm or cold water the waterproof layer starts to peel off the back

Price: £11.95

Summary: A very popular jacket with schools and youth organisations, it's ideal for the occasional or none-too-serious outdoor person who isn't worried about condensation. Matching overtrousers are available at £7.00



Cheap and cheerful and very handy for packing into a pouch or smock pocket, this jacket is useless for anything but standing still in the rain.

Finding the right waterproofing is not just a question of comfort. Once you are wet in an operational environment, your ability to do your job inevitably starts to go downhill and you may easily become a hypothermia case.

Aquatex/Cyclone/Entrant

Commonly used microporous coated fabrics, which are cheaper than the above but less efficient. Typical MVTR: 2000-4000.

Milair/Sympatex

These use a different system: a hydrophilic coated fabric. These have no pores for the moisture to pass through but their chemical composition transfers water from the inside to the outside through the coating. MVTR: 2000-4000.

This is by no means exhaustive, and new fabrics are appearing all the time.

Garment design

Whatever fabric a jacket is made from, its design is equally important. A very complicated design will be highly expen-

Survival Aids Arctic Ranger

Smart, well designed and made from Ventile, the Arctic Ranger has a full wired hood, two chest pockets, two hip pockets and an internal one. The pockets are Ventile-lined so your maps/sandwiches will stay dry, and the jacket is very light but warm and weatherproof. To remain effective, Ventile must be reproofed at

regular intervals. If not reproofed, after a year or two it will begin to leak where it wears most – particularly the elbows, although it needed four hours of torrential rain to achieve this on the one we tested. The cut of the jacket is loose under the arms to give maximum freedom of movement. Available in green or blue.

Durability: 6 Not for diving through hedges in

Breathability: 6 Between Hydro-Ram and Gore-Tex

Waterproofing: 8 Needs reproofing probably once a year

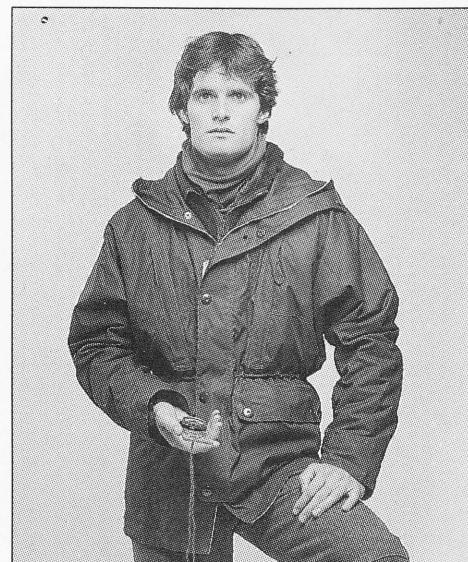
Windproofing: 6 Windproof when dry, but can be a little chilly when wet

Noise factor: 8 Very quiet as long as the

studs are fastened

Washing: Hand wash in warm water; don't use chlorine-based cleaners

Price: £145 Well, you can't have everything
Summary: Better than any wax jacket, ideal for all manner of outdoor activities. Regular reproofing will keep you dry through hours and hours of pouring rain



The Arctic Ranger is a good bit of kit, but a little on the expensive side.



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The value of survival weekends is appreciated by companies who encourage young managers to look for the best in themselves. Marconi and Citibank Corporation are among those who send staff to Mike, and he regularly instructs youngsters from top fee-paying schools like Millfield.

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Barbour wax cotton DPM jacket



The Barbour military waxproofed jacket makes an acceptable alternative to the combat jacket on exercise, but could be a problem in a vehicle fire or similar.

This jacket was a trial item supplied by Barbour to the MoD. It's not just a DPM version of the ordinary Barbour but is made of a different material that doesn't rustle when you move. It boasts two external pockets, one poacher's pocket, one breast pocket and a flap-

covered zip. Generous length leaves the jacket pockets below the webbing belt and your backside is covered. It has a separate cotton liner, but no insulating layer as on some civilian models – this means that when wet it fails to insulate. Its main drawback is its lack of breathability and that it gets heavy when wet.

Durability: 9 Far tougher than any Gore-Tex or other waterproof kit

Breathability: 1 A speed march will leave you soaked in sweat

Waterproofing: 9 With careful reproofing,

otherwise it leaks where it gets the hardest wear, eg elbows

Windproofing: 3 You have been warned

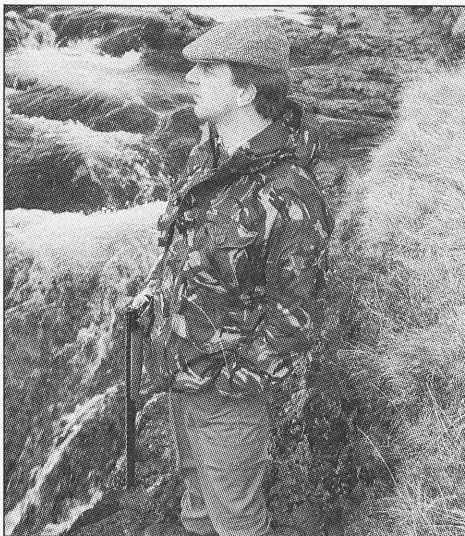
Noise factor: 3 No tactical value

Washing: Sponge down with water. Detergent destroys the waterproofing

Price: £90 for a genuine Barbour

Summary: This jacket was used on several very wet exercises on Warcop and Catterick training areas. Excellent for staying dry in a slit trench, and can be used instead of a combat jacket with suitable shell clothing underneath. Heavy for a waterproof, and not breathable

Survival Aids Ventile smock



This is a waterproof you can wear all the time, but it won't take the hammering you usually give a combat jacket.

This is an up-market version of the SAS smock, but made with 100% cotton Ventile. The very fine, tight weave-cotton fibres swell when wet to stop water penetrating. The makers claim that it

Durability: 9 Given a thorough beating, it came through without trouble

Breathability: 9 It worked as advertised. No criticisms

Waterproofing: 9 Certainly kept the weather out, although the lower pockets leaked slightly

Windproofing: 8 Windproof, warm and comfortable, but too short for my taste

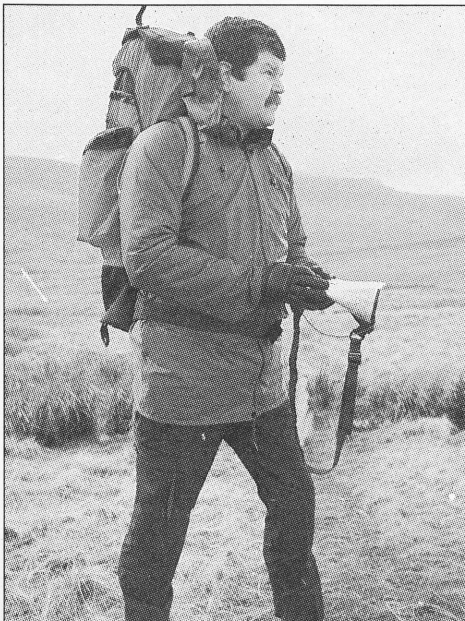
Noise: 8 Slightly more noisy than the SAS smock

breathes better than Gore-Tex when the jacket is very muddy. The SAS smock is cut short: fine if you like to wear it 'riding high' when wearing webbing, but something of a bum freezer.

Washing: Hand/machine wash, but needs reproofing every 2 or 3 washes with Ventile proofing fluid. Otherwise it will begin to leak – see 'Country Ranger' review

Price: £109 Quite a hefty price tag
Summary: A very good military-style jacket with the added benefits of waterproofing and breathability. Suggested improvements: some form of wired visor and storm flaps on the map pockets

Survival Aids Rain Jacket



A 2 oz Milair-waterproof jacket with fully taped seams, this can be stowed easily in pockets or Bergens. It has two large pockets with welded seams, zips and storm flaps. The hood stows neatly, secured by press studs, and drawcords are fitted to the hem and hood. The lightweight zip is not covered by a storm flap.

This is another lightweight item that could be carried on range days where you are not going to be running around. It is small enough to stuff in a pocket.

Durability: 5 Not for arduous conditions

Breathability: 4 Rapid movement soon produced condensation

Waterproofing: 9 Brecon's heaviest rain failed to get through, but we found a slight leak on the zip

Windproofing: 9 Very good with warm clothing underneath

Noise: 0, but this makes no pretence at being a tactical military jacket

Washing: Machine wash, low heat, drip dry
Price: £27.50 – expensive although it is well made

Summary: A very convenient and worthwhile waterproof for leisure walkers

sive unless it's manufactured by some dodgy sub-contractor in the Far East. If the seams are not taped, the jacket will not be waterproof because when the threads in the stitching get wet, capillary attraction will cause water to leak through the stitch holes.

The design must allow you to ventilate and be sufficiently roomy to allow air to circulate inside. This is known as the bellows effect: a close-fitting jacket or one restricted by webbing or a rucksack will always produce condensation.

Making your choice

You have to choose between cost, design and breathability. The variety of jackets available is enormous, although the choice for soldiers is limited because not many manufacturers produce their jackets in DPM. Your choice also becomes more limited if you demand the best breathability. All the fabrics currently on offer are nylon-based, so noise is a problem: none are really suitable as an alternative to combat clothing, and should be worn only as waterproofs.

Looking ahead

As coating technology improves it will hopefully become possible to make combat clothing that is also waterproof. Then we can all get rid of the extra layer needed at the moment. But it's a tall order: such clothing would have to meet the same standards of durability as your combats; they mustn't rustle and/or offer a good infra-red picture to enemy thermal imagers.

ARKTIS has developed such clothing, and initial reaction from those who have tried it is very favourable. Based on a conventional cotton-based fabric, it has a breathable coating applied which produces an MVTR of 3000, and the garments are 'Pertex' lined to reduce the discomfort from any condensation which does form. Again, these garments are not the perfect solution but they are closer to the ideal than anything else currently available. For the soldier who is looking for one layer that is waterproof, breathable, quiet and durable, this could be the answer.

Acknowledgements

We are grateful to the following companies that supplied weatherproof jackets for this product test:

ARKTIS Outdoor Products

Clifford Road, Exeter, EX4 7BJ. Tel: 0392-65315

Fell and Mountain Shop

38a Water Street, Accrington BB5 6PX. Tel: 0254-390986

Radar

9 Warrenby Court, Warrenby, Redcar, Cleveland, TS10 5AT. Tel: 0642-474041

Survival Aids

Morland, Penrith, Cumbria CA10 3AZ. Tel: 09314-444

Next month: WHAT KIT? tests large load-carrying bergens

COLLECTING MILITARIA

Like all dealers I started out as a collector. Having accumulated too much gear, I decided to sell some. To my surprise, I made a profit! How long ago? Well, I remember purchasing a blunderbuss from a local junk shop for ten shillings. Some time later, when these shops had become known as 'antique shops', I bought a brass-mounted percussion holster pistol, a beautiful example – for £10. Would I make a profit on it?

Why do people collect militaria? It often begins with an interest in military history. Reading about a long-gone campaign, and then holding in your hand a relic of that campaign, cannot fail to stimulate the imagination.

All collectors are fully

Retired dealer Gordon Lang lets us into the trade secrets of the militaria collecting scene.

aware of the horrors of war. Conversely, war stimulates great changes, ingenuity, drama and courage. To be part of all this without physical risk may be another motivation for the collector. Another, certainly, is the investment potential. "It's as good as money in the bank," is an often-used collectors'

phrase. Militaria, wisely bought, has kept its value, and often increased its worth.

The thrill of the hunt is perhaps the keenest motivation of all. The excitement and uncertainty of the chase. The return with the prize catch. Perhaps collecting satisfies a need not provided for in late 20th-century Europe!

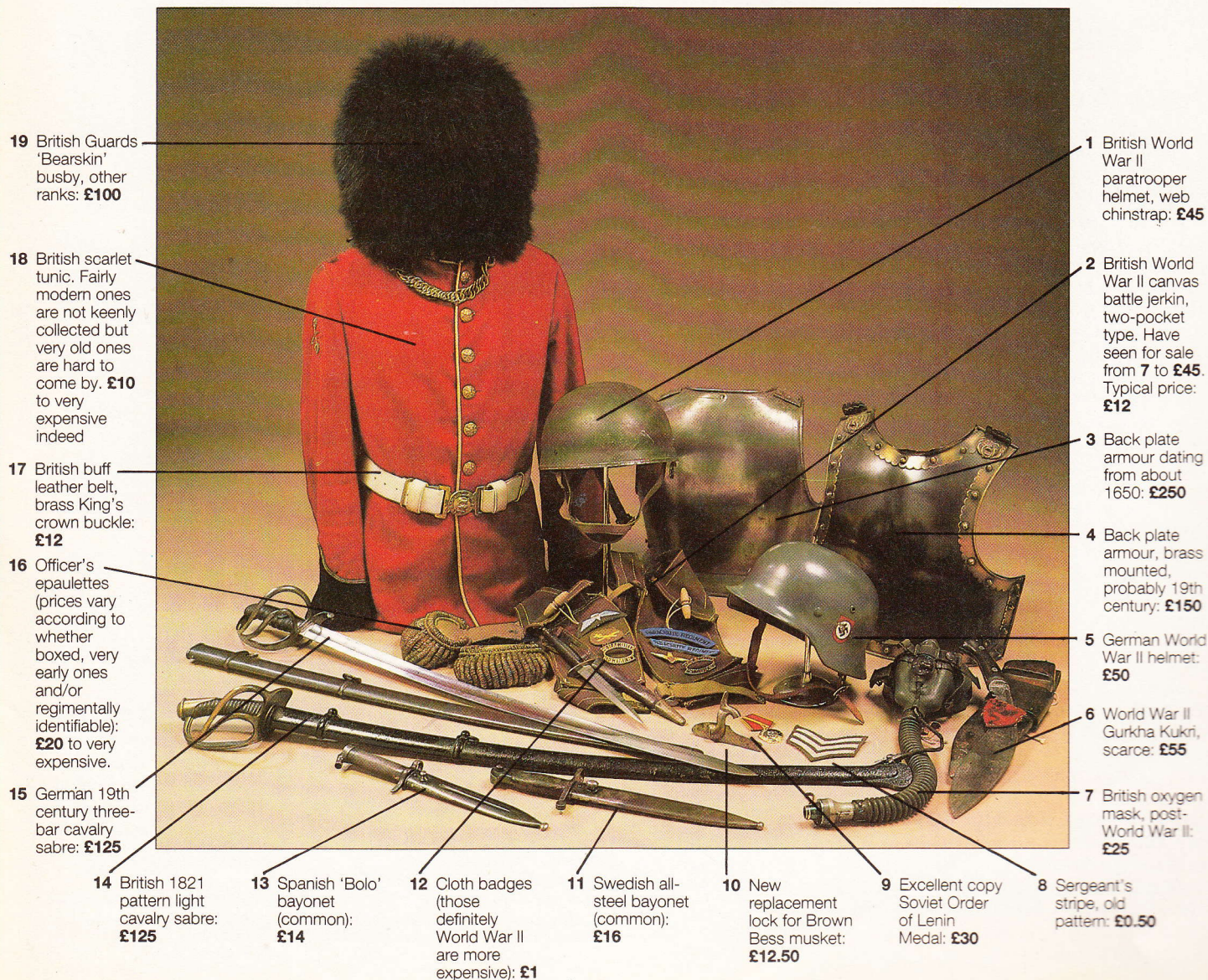
Where to start?

Perhaps you've already got a few pieces, or would just like to start collecting. The best advice I can give to anyone is to join a collector's club. Many exist in towns and cities throughout Great Britain. It's the quickest way to learn the art of collecting, surrounded by knowledgeable enthusiasts and items that you can handle. If any club secretaries would like to write to me through COMBAT AND SURVIVAL, I can publish their details in future editions.

Museums are another source of information. Not just military or regimental museums: most town museums have some militaria on display. But forget the

What to collect: a price guide

Pricing militaria is difficult because the value of the same item can vary enormously. Age, condition, belonging to a desirable unit and many other factors combine to dictate the price. If an item becomes 'fashionable' to collect then the price rises accordingly – and this can change from year to year. The following guide assumes that the goods are complete and in very good condition.



COLLECTING MILITARIA



idea of acquiring any items from a museum: they've been donated to the museum and that's that. It's always seemed a pity that so much interesting small stuff is destined to remain in dusty storerooms for years simply for lack of space to display it.

Where to collect?

The most obvious place to try is the specialist dealer. You may be lucky enough to have one in your area. Some may even provide a mail order catalogue for customers who live a long way off.

Another source is militaria auctions. Their catalogues usually have a brief description of the items for auction, as well as photographs of chosen items. These make a very cheap, excellent reference book, as well as providing a good price guide. A little insider's tip on auctions: if you are fortunate enough to be able to attend in person, get there early, before the sale starts. There is a lot of business done from the boots of individual dealers' cars before the sale gets under way.

Arms Fairs are another fascinating source for the collector. You'll find an amalgam of both full- and part-time dealers offering collectors' items. Another small tip is not to necessarily always pay the asking price immediately: a firm but friendly "is this the least you'll take?" accompanied by a practised disinterested expression often works wonders. Never,

This Nazi SA dagger has its scabbard and original leather hanger. The large golden swastika armband belongs to an SA sports leader; the narrow one was distributed at party rallies. Also shown is an early pattern SA belt buckle, NSDAP party badge, SA sports leader's badge and a lapel pin.

but never – even if you've been searching for this piece for years – exclaim, "it's just what I've been looking for!"

Antique and flea markets can be a very frustrating source. The smaller antique fairs are usually a waste of time. You can be lucky, but you need a great deal of patience in visiting a lot of fairs. The large antique fairs are often a different story: they are often visited by militaria dealers as soon as the event opens. You will also often find that the average antique dealer has little knowledge of militaria, so things can be either very cheap, or ludicrously expensive.

How to collect?

What you decide to collect will depend on your personal preference. British cap badges, German swords, antique pistols, World War I trench items; the list is endless! But I'd like to give a few words of advice on how to collect. Firstly, depending on what you can afford, buy the items that are in the best possible condition. Rusty, damaged or repaired items may look temptingly cheap, but see what happens when

you try to sell them at a later date.

Again, try to buy the items complete. "Wait a little longer and pay a little more" is a good principle. I do know of some dealers who, with the exception of the very earliest and rarest bayonets, for example, will not buy any bayonets without scabbards. Don't let the dealer fob you off with the excuse that you can easily pick up a replacement sheath later. Spare parts are notoriously difficult to come by in the world of militaria!

Handy hints to come

With each edition of COMBAT & SURVIVAL I'll give some tips on recognising reproductions and on repairs and restoration. There will also be some hints on what to look for to get good value for money: most collectors are looking for items in the £10-£200 range, and although it's fun to read reports from auction houses in collectors' magazines these often quote the highest-priced, rarest goodies.

Until next month, good luck and good hunting!



A pair of Royal Navy diver's badges, 1st Class (top) are accompanied by the contractor's counter sample, which shows they were never issued. In the middle is the badge of the Joint Amphibious Warfare School, and at bottom a Royal Marines Commando shoulder flash.

Weapons & Warfare Stockport Arms Fair:

Saturday 1st July

This fair is organised by some members of the Stockport & District Arms Collectors' Society, and takes place in the magnificent main hall of Stockport Town Hall. Its size means not only a large number of dealers, but also plenty of room to get around, and the catering and bar facilities are excellent. Parking is very convenient, with a free-on-Saturday multi-storey car park just round the corner.

I attended the Fair of 14th January 1989 and missed a bargain: one of my interests is swords of World War II and I saw an excellent mint example of a Japanese officer's sword for £160. I went away and thought about it for a while, went back, and it had gone. One of the joys of collecting!

The next W & W is on Saturday 1st July 1989. If you are a dealer requiring a table, or if you just want more information, contact Trevor Whitehurst on 061-485-6908. If you live in the district and would like to join the Society, ring Ken Wooley on 0625-878908.

Lancashire Arms & Collectors' Fair:

Sunday 7th May

I've always enjoyed the Lancashire Fair, which is held in the Crest Hotel, Lord Nelson Street, Liverpool. It's easily accessible by road, and the railway station is just around the corner. This is a well-lit event with plenty of room, and the bar, catering and parking facilities are all very good.

I went to the Fair on Sunday 15th January and felt that it suffered somewhat because of the Stockport Fair the previous day – an unfortunate clash of dates. I was looking for military medals and couldn't find much; this, however, is now true of nearly all fairs. Interesting medal groups, with paperwork, or military medals to my local regiment are becoming increasingly hard to find.

The next Lancashire Fair is on Sunday 7th May: for further details contact 01-300 7129.

Auctions

Christie's

22 March: Modern Guns (London)
5 April: Antique Arms (London)

Phillips

4 May: Arms & Armour (London)
26 May: Soldiers (London W2)
29 June: Militaria (London)

Glendining's

7 June: Orders, Decorations, Medals (London)
28 June: Historical Medals (London)

Sotheby's

11 May: Arms & Armour (London)
19 April: Militaria (Sussex)

Wallis & Wallis

21/22 March: Arms & Armour (Sussex)

Weller & Duffy

29/30 March: Arms & Armour (Birmingham)
2/3 May: Arms & Armour (Birmingham)
6/7 June: Arms & Armour (Birmingham)

Coming in Issue 2

**May Issue:
Out April 20th**

**Even more
pages!**

Even more super features!

**We test the UZI-
the world's greatest
sub-machine gun**

**What Bergen?
We review leading
military Bergens
and assess the
best buys**

**Collecting
Vietnam Special Forces
patches and badges:
how to spot the
rarities and
the fakes**

Other features include:

Fighting Through

How to fight your way from house to house to capture a town.

Battle in Angola

MiGs and Cubans permitting, Jim Hooper's full report from the current fighting in Angola should reach us in time for the May Issue.

Abseiling Techniques

Mark Hillard demonstrates six different methods of abseiling.

2 Para at Goose Green

A first-hand account on the decisive Falklands attack together with personal photos and fabulous full-colour illustrations of the Para's personal kit.

Women in the Army

Should women be allowed to fight in combat roles?

On the Net

Hints and tips for living in the field from our panel of experts.

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